

# ANALYTICAL REPORT

## PREPARED FOR

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Honolulu, Hawaii 96843

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## JOB DESCRIPTION

RED-HILL  
RUSH Weekly Red Hill

## JOB NUMBER

380-57666-1

# 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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# Definitions/Glossary

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

Job ID: 380-57666-1

## Qualifiers

### GC/MS Semi VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
^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
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1+	Surrogate recovery exceeds control limits, high biased.

## 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: 380-57666-1

**Job ID: 380-57666-1**

**Laboratory: Eurofins Eaton Analytical Pomona**

## Narrative

### Job Narrative 380-57666-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 8/4/2023 9:30 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 2.2° C, 3.9° C and 5.5° C.

#### Receipt Exceptions

The following samples were listed on the Chain of Custody (COC); however, no samples were received: HALAWA WELLS UNITS 1&2 is listed on the COC with requested analyses, however no samples were received from this site.

#### GC/MS Semi VOA

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

#### LCMS

Method 533: IDAs-13C3 HFPO-DA and 13C4 PFBA recovered outside of method limits for sample: FB: AIEA GULCH WELLS PUMP 2 (380-57666-5). Unable to re-extract due to insufficient sample amount. Sample is a Field Blank. Field Blank is only required if the associated Field Sample is detected, associated Field Sample 380-57666-1 is ND. 533 Field Blank data excluded due to this QC failure, 537.1 data was reported as there were no noted QC issues.

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

#### Organic Prep

Method 525.2: The following sample was provided to the laboratory with a significantly different initial weight than required by the reference method: AIEA GULCH WELLS PUMP 2 (380-57666-1). The method requires 1000mL. The amount provided was below this range.

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: 380-57666-1

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

**Lab Sample ID: 380-57666-1**

No Detections.

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

**Lab Sample ID: 380-57666-2**

No Detections.

**Client Sample ID: FB: AIEA GULCH WELLS PUMP 2**

**Lab Sample ID: 380-57666-5**

No Detections.

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

**Lab Sample ID: 380-57666-6**

No Detections.

This Detection Summary does not include radiochemical test results.

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# Client Sample Results

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

Job ID: 380-57666-1

**Client Sample ID: AIEA GULCH WELLS PUMP 2**

**Lab Sample ID: 380-57666-1**

**Date Collected: 08/02/23 11:00**

**Matrix: Drinking Water**

**Date Received: 08/04/23 09:30**

**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		08/08/23 17:24	08/09/23 23:29	1
2,4'-DDD	<0.10		0.10	ug/L		08/08/23 17:24	08/09/23 23:29	1
2,4'-DDE	<0.10		0.10	ug/L		08/08/23 17:24	08/09/23 23:29	1
2,4'-DDT	<0.10		0.10	ug/L		08/08/23 17:24	08/09/23 23:29	1
2,4-Dinitrotoluene	<0.10		0.10	ug/L		08/08/23 17:24	08/09/23 23:29	1
2,6-Dinitrotoluene	<0.10		0.10	ug/L		08/08/23 17:24	08/09/23 23:29	1
2-Methylnaphthalene	<0.10		0.10	ug/L		08/08/23 17:24	08/09/23 23:29	1
4,4'-DDD	<0.10		0.10	ug/L		08/08/23 17:24	08/09/23 23:29	1
4,4'-DDE	<0.10		0.10	ug/L		08/08/23 17:24	08/09/23 23:29	1
4,4'-DDT	<0.10		0.10	ug/L		08/08/23 17:24	08/09/23 23:29	1
Acenaphthene	<0.10		0.10	ug/L		08/08/23 17:24	08/09/23 23:29	1
Acenaphthylene	<0.10		0.10	ug/L		08/08/23 17:24	08/09/23 23:29	1
Acetochlor	<0.10	*+	0.10	ug/L		08/08/23 17:24	08/09/23 23:29	1
Alachlor	<0.050		0.050	ug/L		08/08/23 17:24	08/09/23 23:29	1
alpha-BHC	<0.10		0.10	ug/L		08/08/23 17:24	08/09/23 23:29	1
alpha-Chlordane	<0.050		0.050	ug/L		08/08/23 17:24	08/09/23 23:29	1
Anthracene	<0.020		0.020	ug/L		08/08/23 17:24	08/09/23 23:29	1
Atrazine	<0.050		0.050	ug/L		08/08/23 17:24	08/09/23 23:29	1
Benz(a)anthracene	<0.050		0.050	ug/L		08/08/23 17:24	08/09/23 23:29	1
Benzo[a]pyrene	<0.020		0.020	ug/L		08/08/23 17:24	08/09/23 23:29	1
Benzo[b]fluoranthene	<0.020		0.020	ug/L		08/08/23 17:24	08/09/23 23:29	1
Benzo[g,h,i]perylene	<0.050		0.050	ug/L		08/08/23 17:24	08/09/23 23:29	1
Benzo[k]fluoranthene	<0.020		0.020	ug/L		08/08/23 17:24	08/09/23 23:29	1
beta-BHC	<0.10		0.10	ug/L		08/08/23 17:24	08/09/23 23:29	1
Bis(2-ethylhexyl) phthalate	<0.60		0.60	ug/L		08/08/23 17:24	08/09/23 23:29	1
Bromacil	<0.10		0.10	ug/L		08/08/23 17:24	08/09/23 23:29	1
Butachlor	<0.050		0.050	ug/L		08/08/23 17:24	08/09/23 23:29	1
Butylbenzylphthalate	<0.50		0.50	ug/L		08/08/23 17:24	08/09/23 23:29	1
Chlorobenzilate	<0.10		0.10	ug/L		08/08/23 17:24	08/09/23 23:29	1
Chloroneb	<0.10		0.10	ug/L		08/08/23 17:24	08/09/23 23:29	1
Chlorothalonil (Draconil, Bravo)	<0.10		0.10	ug/L		08/08/23 17:24	08/09/23 23:29	1
Chlorpyrifos	<0.050		0.050	ug/L		08/08/23 17:24	08/09/23 23:29	1
Chrysene	<0.020		0.020	ug/L		08/08/23 17:24	08/09/23 23:29	1
delta-BHC	<0.10		0.10	ug/L		08/08/23 17:24	08/09/23 23:29	1
Di(2-ethylhexyl)adipate	<0.60		0.60	ug/L		08/08/23 17:24	08/09/23 23:29	1
Dibenz(a,h)anthracene	<0.050		0.050	ug/L		08/08/23 17:24	08/09/23 23:29	1
Diclorvos (DDVP)	<0.050	^3+ *+	0.050	ug/L		08/08/23 17:24	08/09/23 23:29	1
Dieldrin	<0.20		0.20	ug/L		08/08/23 17:24	08/09/23 23:29	1
Diethylphthalate	<0.50		0.50	ug/L		08/08/23 17:24	08/09/23 23:29	1
Dimethylphthalate	<0.50		0.50	ug/L		08/08/23 17:24	08/09/23 23:29	1
Di-n-butyl phthalate	<1.0		1.0	ug/L		08/08/23 17:24	08/09/23 23:29	1
Di-n-octyl phthalate	<0.10		0.10	ug/L		08/08/23 17:24	08/09/23 23:29	1
Endosulfan I (Alpha)	<0.10		0.10	ug/L		08/08/23 17:24	08/09/23 23:29	1
Endosulfan II (Beta)	<0.10		0.10	ug/L		08/08/23 17:24	08/09/23 23:29	1
Endosulfan sulfate	<0.10		0.10	ug/L		08/08/23 17:24	08/09/23 23:29	1
Endrin	<0.10		0.10	ug/L		08/08/23 17:24	08/09/23 23:29	1
Endrin aldehyde	<0.10		0.10	ug/L		08/08/23 17:24	08/09/23 23:29	1
EPTC	<0.10		0.10	ug/L		08/08/23 17:24	08/09/23 23:29	1
Fluoranthene	<0.10		0.10	ug/L		08/08/23 17:24	08/09/23 23:29	1

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# Client Sample Results

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

Job ID: 380-57666-1

**Client Sample ID: AIEA GULCH WELLS PUMP 2**

**Lab Sample ID: 380-57666-1**

**Date Collected: 08/02/23 11:00**

**Matrix: Drinking Water**

**Date Received: 08/04/23 09:30**

**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		08/08/23 17:24	08/09/23 23:29	1
gamma-Chlordane	<0.050		0.050	ug/L		08/08/23 17:24	08/09/23 23:29	1
Heptachlor	<0.040		0.040	ug/L		08/08/23 17:24	08/09/23 23:29	1
Heptachlor epoxide (isomer B)	<0.050		0.050	ug/L		08/08/23 17:24	08/09/23 23:29	1
Hexachlorobenzene	<0.050		0.050	ug/L		08/08/23 17:24	08/09/23 23:29	1
Hexachlorocyclopentadiene	<0.050		0.050	ug/L		08/08/23 17:24	08/09/23 23:29	1
Indeno[1,2,3-cd]pyrene	<0.050		0.050	ug/L		08/08/23 17:24	08/09/23 23:29	1
Isophorone	<0.50		0.50	ug/L		08/08/23 17:24	08/09/23 23:29	1
Lindane	<0.040		0.040	ug/L		08/08/23 17:24	08/09/23 23:29	1
Malathion	<0.10		0.10	ug/L		08/08/23 17:24	08/09/23 23:29	1
Methoxychlor	<0.10		0.10	ug/L		08/08/23 17:24	08/09/23 23:29	1
Metolachlor	<0.050		0.050	ug/L		08/08/23 17:24	08/09/23 23:29	1
Molinate	<0.10		0.10	ug/L		08/08/23 17:24	08/09/23 23:29	1
Naphthalene	<0.30		0.30	ug/L		08/08/23 17:24	08/09/23 23:29	1
Parathion	<0.10		0.10	ug/L		08/08/23 17:24	08/09/23 23:29	1
Pendimethalin (Penoxaline)	<0.10		0.10	ug/L		08/08/23 17:24	08/09/23 23:29	1
Phenanthrene	<0.040		0.040	ug/L		08/08/23 17:24	08/09/23 23:29	1
Propachlor	<0.050		0.050	ug/L		08/08/23 17:24	08/09/23 23:29	1
Pyrene	<0.050		0.050	ug/L		08/08/23 17:24	08/09/23 23:29	1
Simazine	<0.050		0.050	ug/L		08/08/23 17:24	08/09/23 23:29	1
Terbacil	<0.10		0.10	ug/L		08/08/23 17:24	08/09/23 23:29	1
Terbutylazine	<0.10		0.10	ug/L		08/08/23 17:24	08/09/23 23:29	1
Thiobencarb	<0.20		0.20	ug/L		08/08/23 17:24	08/09/23 23:29	1
Total Permethrin (mixed isomers)	<0.20		0.20	ug/L		08/08/23 17:24	08/09/23 23:29	1
trans-Nonachlor	<0.050		0.050	ug/L		08/08/23 17:24	08/09/23 23:29	1
Trifluralin	<0.10		0.10	ug/L		08/08/23 17:24	08/09/23 23:29	1

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Unknown	0.61	T J	ug/L		2.30	N/A	08/08/23 17:24	08/09/23 23:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	97		70 - 130	08/08/23 17:24	08/09/23 23:29	1
Perylene-d12	91		70 - 130	08/08/23 17:24	08/09/23 23:29	1
Triphenylphosphate	96		70 - 130	08/08/23 17:24	08/09/23 23:29	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		08/24/23 16:20	08/27/23 06:07	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:07	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:07	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:07	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:07	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:07	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:07	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:07	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:07	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:07	1

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# Client Sample Results

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

Job ID: 380-57666-1

**Client Sample ID: AIEA GULCH WELLS PUMP 2**

**Lab Sample ID: 380-57666-1**

**Date Collected: 08/02/23 11:00**

**Matrix: Drinking Water**

**Date Received: 08/04/23 09:30**

**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		08/24/23 16:20	08/27/23 06:07	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:07	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:07	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:07	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:07	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:07	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:07	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:07	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:07	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:07	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:07	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:07	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:07	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:07	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:07	1
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	79		50 - 200			08/24/23 16:20	08/27/23 06:07	1
13C6 PFDA	96		50 - 200			08/24/23 16:20	08/27/23 06:07	1
13C5 PFHxA	87		50 - 200			08/24/23 16:20	08/27/23 06:07	1
13C4 PFHpA	88		50 - 200			08/24/23 16:20	08/27/23 06:07	1
13C8 PFOA	96		50 - 200			08/24/23 16:20	08/27/23 06:07	1
13C9 PFNA	95		50 - 200			08/24/23 16:20	08/27/23 06:07	1
13C7 PFUnA	96		50 - 200			08/24/23 16:20	08/27/23 06:07	1
13C2 PFDoA	95		50 - 200			08/24/23 16:20	08/27/23 06:07	1
13C4 PFBA	93		50 - 200			08/24/23 16:20	08/27/23 06:07	1
13C5 PFPeA	90		50 - 200			08/24/23 16:20	08/27/23 06:07	1
13C3 PFBS	95		50 - 200			08/24/23 16:20	08/27/23 06:07	1
13C3 PFHxS	93		50 - 200			08/24/23 16:20	08/27/23 06:07	1
13C8 PFOS	94		50 - 200			08/24/23 16:20	08/27/23 06:07	1
13C2-4:2-FTS	104		50 - 200			08/24/23 16:20	08/27/23 06:07	1
13C2-6:2-FTS	100		50 - 200			08/24/23 16:20	08/27/23 06:07	1
13C2-8:2-FTS	98		50 - 200			08/24/23 16:20	08/27/23 06:07	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:17	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:17	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:17	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:17	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:17	1

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# Client Sample Results

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

Job ID: 380-57666-1

**Client Sample ID: AIEA GULCH WELLS PUMP 2**

**Lab Sample ID: 380-57666-1**

Date Collected: 08/02/23 11:00

Matrix: Drinking Water

Date Received: 08/04/23 09:30

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		08/09/23 10:40	08/12/23 04:17	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:17	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:17	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:17	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:17	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:17	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:17	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:17	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:17	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:17	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:17	1
11-Chloroeicosafuoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:17	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:17	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	102		70 - 130			08/09/23 10:40	08/12/23 04:17	1
13C2 PFHxA	109		70 - 130			08/09/23 10:40	08/12/23 04:17	1
13C2 PFDA	108		70 - 130			08/09/23 10:40	08/12/23 04:17	1
13C3-GenX	96		70 - 130			08/09/23 10:40	08/12/23 04:17	1

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

**Lab Sample ID: 380-57666-2**

Date Collected: 08/02/23 11:30

Matrix: Drinking Water

Date Received: 08/04/23 09:30

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	<0.098		0.098	ug/L		08/08/23 17:24	08/09/23 23:49	1
2,4'-DDD	<0.098		0.098	ug/L		08/08/23 17:24	08/09/23 23:49	1
2,4'-DDE	<0.098		0.098	ug/L		08/08/23 17:24	08/09/23 23:49	1
2,4'-DDT	<0.098		0.098	ug/L		08/08/23 17:24	08/09/23 23:49	1
2,4-Dinitrotoluene	<0.098		0.098	ug/L		08/08/23 17:24	08/09/23 23:49	1
2,6-Dinitrotoluene	<0.098		0.098	ug/L		08/08/23 17:24	08/09/23 23:49	1
2-Methylnaphthalene	<0.098		0.098	ug/L		08/08/23 17:24	08/09/23 23:49	1
4,4'-DDD	<0.098		0.098	ug/L		08/08/23 17:24	08/09/23 23:49	1
4,4'-DDE	<0.098		0.098	ug/L		08/08/23 17:24	08/09/23 23:49	1
4,4'-DDT	<0.098		0.098	ug/L		08/08/23 17:24	08/09/23 23:49	1
Acenaphthene	<0.098		0.098	ug/L		08/08/23 17:24	08/09/23 23:49	1
Acenaphthylene	<0.098		0.098	ug/L		08/08/23 17:24	08/09/23 23:49	1
Acetochlor	<0.098	*+	0.098	ug/L		08/08/23 17:24	08/09/23 23:49	1
Alachlor	<0.049		0.049	ug/L		08/08/23 17:24	08/09/23 23:49	1
alpha-BHC	<0.098		0.098	ug/L		08/08/23 17:24	08/09/23 23:49	1
alpha-Chlordane	<0.049		0.049	ug/L		08/08/23 17:24	08/09/23 23:49	1
Anthracene	<0.020		0.020	ug/L		08/08/23 17:24	08/09/23 23:49	1
Atrazine	<0.049		0.049	ug/L		08/08/23 17:24	08/09/23 23:49	1
Benz(a)anthracene	<0.049		0.049	ug/L		08/08/23 17:24	08/09/23 23:49	1
Benzo[a]pyrene	<0.020		0.020	ug/L		08/08/23 17:24	08/09/23 23:49	1
Benzo[b]fluoranthene	<0.020		0.020	ug/L		08/08/23 17:24	08/09/23 23:49	1
Benzo[g,h,i]perylene	<0.049		0.049	ug/L		08/08/23 17:24	08/09/23 23:49	1

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# Client Sample Results

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

Job ID: 380-57666-1

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

**Lab Sample ID: 380-57666-2**

**Date Collected: 08/02/23 11:30**

**Matrix: Drinking Water**

**Date Received: 08/04/23 09:30**

**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		0.020	ug/L		08/08/23 17:24	08/09/23 23:49	1
beta-BHC	<0.098		0.098	ug/L		08/08/23 17:24	08/09/23 23:49	1
Bis(2-ethylhexyl) phthalate	<0.59		0.59	ug/L		08/08/23 17:24	08/09/23 23:49	1
Bromacil	<0.098		0.098	ug/L		08/08/23 17:24	08/09/23 23:49	1
Butachlor	<0.049		0.049	ug/L		08/08/23 17:24	08/09/23 23:49	1
Butylbenzylphthalate	<0.49		0.49	ug/L		08/08/23 17:24	08/09/23 23:49	1
Chlorobenzilate	<0.098		0.098	ug/L		08/08/23 17:24	08/09/23 23:49	1
Chloroneb	<0.098		0.098	ug/L		08/08/23 17:24	08/09/23 23:49	1
Chlorothalonil (Draconil, Bravo)	<0.098		0.098	ug/L		08/08/23 17:24	08/09/23 23:49	1
Chlorpyrifos	<0.049		0.049	ug/L		08/08/23 17:24	08/09/23 23:49	1
Chrysene	<0.020		0.020	ug/L		08/08/23 17:24	08/09/23 23:49	1
delta-BHC	<0.098		0.098	ug/L		08/08/23 17:24	08/09/23 23:49	1
Di(2-ethylhexyl)adipate	<0.59		0.59	ug/L		08/08/23 17:24	08/09/23 23:49	1
Dibenz(a,h)anthracene	<0.049		0.049	ug/L		08/08/23 17:24	08/09/23 23:49	1
Diclorvos (DDVP)	<0.049	^3+ **	0.049	ug/L		08/08/23 17:24	08/09/23 23:49	1
Dieldrin	<0.20		0.20	ug/L		08/08/23 17:24	08/09/23 23:49	1
Diethylphthalate	<0.49		0.49	ug/L		08/08/23 17:24	08/09/23 23:49	1
Dimethylphthalate	<0.49		0.49	ug/L		08/08/23 17:24	08/09/23 23:49	1
Di-n-butyl phthalate	<0.98		0.98	ug/L		08/08/23 17:24	08/09/23 23:49	1
Di-n-octyl phthalate	<0.098		0.098	ug/L		08/08/23 17:24	08/09/23 23:49	1
Endosulfan I (Alpha)	<0.098		0.098	ug/L		08/08/23 17:24	08/09/23 23:49	1
Endosulfan II (Beta)	<0.098		0.098	ug/L		08/08/23 17:24	08/09/23 23:49	1
Endosulfan sulfate	<0.098		0.098	ug/L		08/08/23 17:24	08/09/23 23:49	1
Endrin	<0.098		0.098	ug/L		08/08/23 17:24	08/09/23 23:49	1
Endrin aldehyde	<0.098		0.098	ug/L		08/08/23 17:24	08/09/23 23:49	1
EPTC	<0.098		0.098	ug/L		08/08/23 17:24	08/09/23 23:49	1
Fluoranthene	<0.098		0.098	ug/L		08/08/23 17:24	08/09/23 23:49	1
Fluorene	<0.049		0.049	ug/L		08/08/23 17:24	08/09/23 23:49	1
gamma-Chlordane	<0.049		0.049	ug/L		08/08/23 17:24	08/09/23 23:49	1
Heptachlor	<0.039		0.039	ug/L		08/08/23 17:24	08/09/23 23:49	1
Heptachlor epoxide (isomer B)	<0.049		0.049	ug/L		08/08/23 17:24	08/09/23 23:49	1
Hexachlorobenzene	<0.049		0.049	ug/L		08/08/23 17:24	08/09/23 23:49	1
Hexachlorocyclopentadiene	<0.049		0.049	ug/L		08/08/23 17:24	08/09/23 23:49	1
Indeno[1,2,3-cd]pyrene	<0.049		0.049	ug/L		08/08/23 17:24	08/09/23 23:49	1
Isophorone	<0.49		0.49	ug/L		08/08/23 17:24	08/09/23 23:49	1
Lindane	<0.039		0.039	ug/L		08/08/23 17:24	08/09/23 23:49	1
Malathion	<0.098		0.098	ug/L		08/08/23 17:24	08/09/23 23:49	1
Methoxychlor	<0.098		0.098	ug/L		08/08/23 17:24	08/09/23 23:49	1
Metolachlor	<0.049		0.049	ug/L		08/08/23 17:24	08/09/23 23:49	1
Molinate	<0.098		0.098	ug/L		08/08/23 17:24	08/09/23 23:49	1
Naphthalene	<0.29		0.29	ug/L		08/08/23 17:24	08/09/23 23:49	1
Parathion	<0.098		0.098	ug/L		08/08/23 17:24	08/09/23 23:49	1
Pendimethalin (Penoxaline)	<0.098		0.098	ug/L		08/08/23 17:24	08/09/23 23:49	1
Phenanthrene	<0.039		0.039	ug/L		08/08/23 17:24	08/09/23 23:49	1
Propachlor	<0.049		0.049	ug/L		08/08/23 17:24	08/09/23 23:49	1
Pyrene	<0.049		0.049	ug/L		08/08/23 17:24	08/09/23 23:49	1
Simazine	<0.049		0.049	ug/L		08/08/23 17:24	08/09/23 23:49	1
Terbacil	<0.098		0.098	ug/L		08/08/23 17:24	08/09/23 23:49	1
Terbutylazine	<0.098		0.098	ug/L		08/08/23 17:24	08/09/23 23:49	1

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# Client Sample Results

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

Job ID: 380-57666-1

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

**Lab Sample ID: 380-57666-2**

**Date Collected: 08/02/23 11:30**

**Matrix: Drinking Water**

**Date Received: 08/04/23 09:30**

**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		08/08/23 17:24	08/09/23 23:49	1
Total Permethrin (mixed isomers)	<0.20		0.20	ug/L		08/08/23 17:24	08/09/23 23:49	1
trans-Nonachlor	<0.049		0.049	ug/L		08/08/23 17:24	08/09/23 23:49	1
Trifluralin	<0.098		0.098	ug/L		08/08/23 17:24	08/09/23 23:49	1

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Tentatively Identified Compound	None		ug/L			N/A	08/08/23 17:24	08/09/23 23:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	95		70 - 130	08/08/23 17:24	08/09/23 23:49	1
Perylene-d12	91		70 - 130	08/08/23 17:24	08/09/23 23:49	1
Triphenylphosphate	99		70 - 130	08/08/23 17:24	08/09/23 23:49	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		08/24/23 16:20	08/27/23 06:27	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:27	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:27	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:27	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:27	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:27	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:27	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:27	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:27	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:27	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:27	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:27	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:27	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:27	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:27	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:27	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:27	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:27	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:27	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:27	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:27	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:27	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:27	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:27	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:27	1

Eurofins Eaton Analytical Pomona

# Client Sample Results

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

Job ID: 380-57666-1

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

**Lab Sample ID: 380-57666-2**

**Date Collected: 08/02/23 11:30**

**Matrix: Drinking Water**

**Date Received: 08/04/23 09:30**

**PWSID Number: HI0000331**

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	51		50 - 200	08/24/23 16:20	08/27/23 06:27	1
13C6 PFDA	86		50 - 200	08/24/23 16:20	08/27/23 06:27	1
13C5 PFHxA	63		50 - 200	08/24/23 16:20	08/27/23 06:27	1
13C4 PFHpA	63		50 - 200	08/24/23 16:20	08/27/23 06:27	1
13C8 PFOA	70		50 - 200	08/24/23 16:20	08/27/23 06:27	1
13C9 PFNA	77		50 - 200	08/24/23 16:20	08/27/23 06:27	1
13C7 PFUnA	80		50 - 200	08/24/23 16:20	08/27/23 06:27	1
13C2 PFDoA	90		50 - 200	08/24/23 16:20	08/27/23 06:27	1
13C4 PFBA	74		50 - 200	08/24/23 16:20	08/27/23 06:27	1
13C5 PFPeA	69		50 - 200	08/24/23 16:20	08/27/23 06:27	1
13C3 PFBS	96		50 - 200	08/24/23 16:20	08/27/23 06:27	1
13C3 PFHxS	96		50 - 200	08/24/23 16:20	08/27/23 06:27	1
13C8 PFOS	97		50 - 200	08/24/23 16:20	08/27/23 06:27	1
13C2-4:2-FTS	108		50 - 200	08/24/23 16:20	08/27/23 06:27	1
13C2-6:2-FTS	105		50 - 200	08/24/23 16:20	08/27/23 06:27	1
13C2-8:2-FTS	142		50 - 200	08/24/23 16:20	08/27/23 06:27	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		08/09/23 10:40	08/12/23 04:26	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:26	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:26	1
N-methylperfluorooctanesulfonamide acetic acid (NMeFOSAA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:26	1
N-ethylperfluorooctanesulfonamide acetic acid (NEtFOSAA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:26	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:26	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:26	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:26	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:26	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:26	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:26	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:26	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:26	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:26	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:26	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:26	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:26	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	107		70 - 130	08/09/23 10:40	08/12/23 04:26	1
13C2 PFHxA	112		70 - 130	08/09/23 10:40	08/12/23 04:26	1
13C2 PFDA	110		70 - 130	08/09/23 10:40	08/12/23 04:26	1
13C3-GenX	104		70 - 130	08/09/23 10:40	08/12/23 04:26	1

# Client Sample Results

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

Job ID: 380-57666-1

**Client Sample ID: FB: AIEA GULCH WELLS PUMP 2**

**Lab Sample ID: 380-57666-5**

**Date Collected: 08/02/23 11:00**

**Matrix: Water**

**Date Received: 08/04/23 09:30**

**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		08/09/23 10:40	08/12/23 04:47	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:47	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:47	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:47	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:47	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:47	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:47	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:47	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:47	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:47	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:47	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:47	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:47	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:47	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:47	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:47	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:47	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:47	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>			<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
d5-NEtFOSAA	112		70 - 130			08/09/23 10:40	08/12/23 04:47	1
13C2 PFHxA	103		70 - 130			08/09/23 10:40	08/12/23 04:47	1
13C2 PFDA	107		70 - 130			08/09/23 10:40	08/12/23 04:47	1
13C3-GenX	104		70 - 130			08/09/23 10:40	08/12/23 04:47	1

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

**Lab Sample ID: 380-57666-6**

**Date Collected: 08/02/23 11:30**

**Matrix: Water**

**Date Received: 08/04/23 09:30**

**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		08/24/23 16:20	08/27/23 06:58	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:58	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:58	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:58	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:58	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:58	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:58	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:58	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:58	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:58	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:58	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:58	1

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# Client Sample Results

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

Job ID: 380-57666-1

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

**Lab Sample ID: 380-57666-6**

**Date Collected: 08/02/23 11:30**

**Matrix: Water**

**Date Received: 08/04/23 09:30**

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:58	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:58	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:58	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:58	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:58	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:58	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:58	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:58	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:58	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:58	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:58	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:58	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		08/24/23 16:20	08/27/23 06:58	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	63		50 - 200	08/24/23 16:20	08/27/23 06:58	1
13C6 PFDA	91		50 - 200	08/24/23 16:20	08/27/23 06:58	1
13C5 PFHxA	70		50 - 200	08/24/23 16:20	08/27/23 06:58	1
13C4 PFHpA	77		50 - 200	08/24/23 16:20	08/27/23 06:58	1
13C8 PFOA	82		50 - 200	08/24/23 16:20	08/27/23 06:58	1
13C9 PFNA	86		50 - 200	08/24/23 16:20	08/27/23 06:58	1
13C7 PFUnA	90		50 - 200	08/24/23 16:20	08/27/23 06:58	1
13C2 PFDoA	92		50 - 200	08/24/23 16:20	08/27/23 06:58	1
13C4 PFBA	70		50 - 200	08/24/23 16:20	08/27/23 06:58	1
13C5 PFPeA	73		50 - 200	08/24/23 16:20	08/27/23 06:58	1
13C3 PFBS	94		50 - 200	08/24/23 16:20	08/27/23 06:58	1
13C3 PFHxS	95		50 - 200	08/24/23 16:20	08/27/23 06:58	1
13C8 PFOS	93		50 - 200	08/24/23 16:20	08/27/23 06:58	1
13C2-4:2-FTS	101		50 - 200	08/24/23 16:20	08/27/23 06:58	1
13C2-6:2-FTS	92		50 - 200	08/24/23 16:20	08/27/23 06:58	1
13C2-8:2-FTS	94		50 - 200	08/24/23 16:20	08/27/23 06:58	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		08/09/23 10:40	08/12/23 04:58	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:58	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:58	1
N-methylperfluorooctanesulfonamideacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:58	1
N-ethylperfluorooctanesulfonamideacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:58	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:58	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:58	1

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# Client Sample Results

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

Job ID: 380-57666-1

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

**Lab Sample ID: 380-57666-6**

**Date Collected: 08/02/23 11:30**

**Matrix: Water**

**Date Received: 08/04/23 09:30**

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:58	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:58	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:58	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:58	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:58	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:58	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:58	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:58	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:58	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:58	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		08/09/23 10:40	08/12/23 04:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	101		70 - 130	08/09/23 10:40	08/12/23 04:58	1
13C2 PFHxA	112		70 - 130	08/09/23 10:40	08/12/23 04:58	1
13C2 PFDA	109		70 - 130	08/09/23 10:40	08/12/23 04:58	1
13C3-GenX	104		70 - 130	08/09/23 10:40	08/12/23 04:58	1



# Action Limit Summary

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

Job ID: 380-57666-1

**Client Sample ID: AIEA GULCH WELLS PUMP 2**

**Lab Sample ID: 380-57666-1**

**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		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 WELLS PUMPS 1&2 (260)**

**Lab Sample ID: 380-57666-2**

**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		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	<0.098		ug/L	2		0.098	525.2	Total/NA
Heptachlor	<0.039		ug/L	0.4		0.039	525.2	Total/NA
Heptachlor epoxide (isomer B)	<0.049		ug/L	0.2		0.049	525.2	Total/NA
Hexachlorobenzene	<0.049		ug/L	1		0.049	525.2	Total/NA
Hexachlorocyclopentadiene	<0.049		ug/L	50		0.049	525.2	Total/NA
Lindane	<0.039		ug/L	0.2		0.039	525.2	Total/NA
Methoxychlor	<0.098		ug/L	40		0.098	525.2	Total/NA
Simazine	<0.049		ug/L	4		0.049	525.2	Total/NA

# Surrogate Summary

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

Job ID: 380-57666-1

## 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)
380-57666-1	AIEA GULCH WELLS PUMP 2	97	91	96
380-57666-2	AIEA WELLS PUMPS 1&2 (260)	95	91	99
380-57666-2 DU	AIEA WELLS PUMPS 1&2 (260)	98	89	98

**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)
380-57639-J-1-A MS	Matrix Spike	97	93	101
LCS 380-50800/23-A	Lab Control Sample	98	93	98
LCS 380-50800/24-A	Lab Control Sample Dup	97	95	100
MB 380-50800/21-A	Method Blank	97	93	102
MRL 380-50800/22-A	Lab Control Sample	97	91	99

**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)
380-57666-1	AIEA GULCH WELLS PUMP 2	102	109	108	96
380-57666-2	AIEA WELLS PUMPS 1&2 (260)	107	112	110	104

**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)
380-57666-5	FB: AIEA GULCH WELLS PUM	112	103	107	104
380-57666-6	FB: AIEA WELLS PUMPS 1&2 (260)	101	112	109	104
380-57743-BJ-1-B MSD	Matrix Spike Duplicate	93	116	96	107
380-57743-BK-1-B MS	Matrix Spike	101	131 S1+	113	119
LCS 380-50958/20-A	Lab Control Sample	99	110	109	105

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# Surrogate Summary

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

Job ID: 380-57666-1

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

**Matrix: Water**

**Prep Type: Total/NA**

## Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	d5NEFOS	PFHxA	PFDA	GenX
		(70-130)	(70-130)	(70-130)	(70-130)
LCSD 380-50958/21-A	Lab Control Sample Dup	100	110	110	115
MBL 380-50958/18-A	Method Blank	106	107	108	104
MRL 380-50958/19-A	Lab Control Sample	114	109	112	100

### 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: 380-57666-1

## 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)
380-57666-1	AIEA GULCH WELLS PUMP 2	79	96	87	88	96	95	96	95
380-57666-2	AIEA WELLS PUMPS 1&2 (260)	51	86	63	63	70	77	80	90

### 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)
380-57666-1	AIEA GULCH WELLS PUMP 2	93	90	95	93	94	104	100	98
380-57666-2	AIEA WELLS PUMPS 1&2 (260)	74	69	96	96	97	108	105	142

#### 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)
380-57432-O-1-D LMS	Matrix Spike	48 *5-	77	58	61	69	72	77	87
380-57432-P-1-C LMSD	Matrix Spike Duplicate	68	84	78	78	85	85	85	90
380-57666-6	FB: AIEA WELLS PUMPS 1&2 (260)	63	91	70	77	82	86	90	92
LCS 380-53035/23-A	Lab Control Sample	91	95	94	96	97	99	96	98
LCSD 380-53035/24-A	Lab Control Sample Dup	86	98	85	93	96	97	96	97
MBL 380-53035/21-A	Method Blank	79	95	88	88	93	91	88	91
MRL 380-53035/22-A	Lab Control Sample	82	93	90	90	95	93	91	93

### Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFBA (50-200)	PFPeA (50-200)	C3PFBS (50-200)	C3PFHS (50-200)	C8PFOS (50-200)	42FTS (50-200)	62FTS (50-200)	82FTS (50-200)
380-57432-O-1-D LMS	Matrix Spike	63	57	92	95	93	103	96	94
380-57432-P-1-C LMSD	Matrix Spike Duplicate	83	78	88	98	97	112	97	99
380-57666-6	FB: AIEA WELLS PUMPS 1&2 (260)	70	73	94	95	93	101	92	94
LCS 380-53035/23-A	Lab Control Sample	93	94	92	96	95	95	93	90
LCSD 380-53035/24-A	Lab Control Sample Dup	84	86	95	97	96	106	94	94
MBL 380-53035/21-A	Method Blank	92	90	90	90	91	101	98	109

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# Isotope Dilution Summary

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

Job ID: 380-57666-1

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

Matrix: Water

Prep Type: Total/NA

### Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFBA (50-200)	PFPeA (50-200)	C3PFBS (50-200)	C3PFHS (50-200)	C8PFOS (50-200)	42FTS (50-200)	62FTS (50-200)	82FTS (50-200)
MRL 380-53035/22-A	Lab Control Sample	94	94	87	88	89	94	87	88

#### 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: 380-57666-1

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

**Lab Sample ID: MB 380-50800/21-A**  
**Matrix: Water**  
**Analysis Batch: 50998**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 50800**

Analyte	MB	MB	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
1-Methylnaphthalene	<0.098		0.098	ug/L		08/08/23 16:02	08/09/23 17:00	1
2,4'-DDD	<0.098		0.098	ug/L		08/08/23 16:02	08/09/23 17:00	1
2,4'-DDE	<0.098		0.098	ug/L		08/08/23 16:02	08/09/23 17:00	1
2,4'-DDT	<0.098		0.098	ug/L		08/08/23 16:02	08/09/23 17:00	1
2,4-Dinitrotoluene	<0.098		0.098	ug/L		08/08/23 16:02	08/09/23 17:00	1
2,6-Dinitrotoluene	<0.098		0.098	ug/L		08/08/23 16:02	08/09/23 17:00	1
2-Methylnaphthalene	<0.098		0.098	ug/L		08/08/23 16:02	08/09/23 17:00	1
4,4'-DDD	<0.098		0.098	ug/L		08/08/23 16:02	08/09/23 17:00	1
4,4'-DDE	<0.098		0.098	ug/L		08/08/23 16:02	08/09/23 17:00	1
4,4'-DDT	<0.098		0.098	ug/L		08/08/23 16:02	08/09/23 17:00	1
Acenaphthene	<0.098		0.098	ug/L		08/08/23 16:02	08/09/23 17:00	1
Acenaphthylene	<0.098		0.098	ug/L		08/08/23 16:02	08/09/23 17:00	1
Acetochlor	<0.098		0.098	ug/L		08/08/23 16:02	08/09/23 17:00	1
Alachlor	<0.049		0.049	ug/L		08/08/23 16:02	08/09/23 17:00	1
alpha-BHC	<0.098		0.098	ug/L		08/08/23 16:02	08/09/23 17:00	1
alpha-Chlordane	<0.049		0.049	ug/L		08/08/23 16:02	08/09/23 17:00	1
Anthracene	<0.020		0.020	ug/L		08/08/23 16:02	08/09/23 17:00	1
Atrazine	<0.049		0.049	ug/L		08/08/23 16:02	08/09/23 17:00	1
Benz(a)anthracene	<0.049		0.049	ug/L		08/08/23 16:02	08/09/23 17:00	1
Benzo[a]pyrene	<0.020		0.020	ug/L		08/08/23 16:02	08/09/23 17:00	1
Benzo[b]fluoranthene	<0.020		0.020	ug/L		08/08/23 16:02	08/09/23 17:00	1
Benzo[g,h,i]perylene	<0.049		0.049	ug/L		08/08/23 16:02	08/09/23 17:00	1
Benzo[k]fluoranthene	<0.020		0.020	ug/L		08/08/23 16:02	08/09/23 17:00	1
beta-BHC	<0.098		0.098	ug/L		08/08/23 16:02	08/09/23 17:00	1
Bis(2-ethylhexyl) phthalate	<0.59		0.59	ug/L		08/08/23 16:02	08/09/23 17:00	1
Bromacil	<0.098		0.098	ug/L		08/08/23 16:02	08/09/23 17:00	1
Butachlor	<0.049		0.049	ug/L		08/08/23 16:02	08/09/23 17:00	1
Butylbenzylphthalate	<0.49		0.49	ug/L		08/08/23 16:02	08/09/23 17:00	1
Chlorobenzilate	<0.098		0.098	ug/L		08/08/23 16:02	08/09/23 17:00	1
Chloroneb	<0.098		0.098	ug/L		08/08/23 16:02	08/09/23 17:00	1
Chlorothalonil (Draconil, Bravo)	<0.098		0.098	ug/L		08/08/23 16:02	08/09/23 17:00	1
Chlorpyrifos	<0.049		0.049	ug/L		08/08/23 16:02	08/09/23 17:00	1
Chrysene	<0.020		0.020	ug/L		08/08/23 16:02	08/09/23 17:00	1
delta-BHC	<0.098		0.098	ug/L		08/08/23 16:02	08/09/23 17:00	1
Di(2-ethylhexyl)adipate	<0.59		0.59	ug/L		08/08/23 16:02	08/09/23 17:00	1
Dibenz(a,h)anthracene	<0.049		0.049	ug/L		08/08/23 16:02	08/09/23 17:00	1
Diclorvos (DDVP)	<0.049		0.049	ug/L		08/08/23 16:02	08/09/23 17:00	1
Dieldrin	<0.20		0.20	ug/L		08/08/23 16:02	08/09/23 17:00	1
Diethylphthalate	<0.49		0.49	ug/L		08/08/23 16:02	08/09/23 17:00	1
Dimethylphthalate	<0.49		0.49	ug/L		08/08/23 16:02	08/09/23 17:00	1
Di-n-butyl phthalate	<0.98		0.98	ug/L		08/08/23 16:02	08/09/23 17:00	1
Di-n-octyl phthalate	<0.098		0.098	ug/L		08/08/23 16:02	08/09/23 17:00	1
Endosulfan I (Alpha)	<0.098		0.098	ug/L		08/08/23 16:02	08/09/23 17:00	1
Endosulfan II (Beta)	<0.098		0.098	ug/L		08/08/23 16:02	08/09/23 17:00	1
Endosulfan sulfate	<0.098		0.098	ug/L		08/08/23 16:02	08/09/23 17:00	1
Endrin	<0.098		0.098	ug/L		08/08/23 16:02	08/09/23 17:00	1
Endrin aldehyde	<0.098		0.098	ug/L		08/08/23 16:02	08/09/23 17:00	1
EPTC	<0.098		0.098	ug/L		08/08/23 16:02	08/09/23 17:00	1

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# QC Sample Results

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

Job ID: 380-57666-1

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

**Lab Sample ID: MB 380-50800/21-A**  
**Matrix: Water**  
**Analysis Batch: 50998**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 50800**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoranthene	<0.098		0.098	ug/L		08/08/23 16:02	08/09/23 17:00	1
Fluorene	<0.049		0.049	ug/L		08/08/23 16:02	08/09/23 17:00	1
gamma-Chlordane	<0.049		0.049	ug/L		08/08/23 16:02	08/09/23 17:00	1
Heptachlor	<0.039		0.039	ug/L		08/08/23 16:02	08/09/23 17:00	1
Heptachlor epoxide (isomer B)	<0.049		0.049	ug/L		08/08/23 16:02	08/09/23 17:00	1
Hexachlorobenzene	<0.049		0.049	ug/L		08/08/23 16:02	08/09/23 17:00	1
Hexachlorocyclopentadiene	<0.049		0.049	ug/L		08/08/23 16:02	08/09/23 17:00	1
Indeno[1,2,3-cd]pyrene	<0.049		0.049	ug/L		08/08/23 16:02	08/09/23 17:00	1
Isophorone	<0.49		0.49	ug/L		08/08/23 16:02	08/09/23 17:00	1
Lindane	<0.039		0.039	ug/L		08/08/23 16:02	08/09/23 17:00	1
Malathion	<0.098		0.098	ug/L		08/08/23 16:02	08/09/23 17:00	1
Methoxychlor	<0.098		0.098	ug/L		08/08/23 16:02	08/09/23 17:00	1
Metolachlor	<0.049		0.049	ug/L		08/08/23 16:02	08/09/23 17:00	1
Molinate	<0.098		0.098	ug/L		08/08/23 16:02	08/09/23 17:00	1
Naphthalene	<0.30		0.30	ug/L		08/08/23 16:02	08/09/23 17:00	1
Parathion	<0.098		0.098	ug/L		08/08/23 16:02	08/09/23 17:00	1
Pendimethalin (Penoxaline)	<0.098		0.098	ug/L		08/08/23 16:02	08/09/23 17:00	1
Phenanthrene	<0.039		0.039	ug/L		08/08/23 16:02	08/09/23 17:00	1
Propachlor	<0.049		0.049	ug/L		08/08/23 16:02	08/09/23 17:00	1
Pyrene	<0.049		0.049	ug/L		08/08/23 16:02	08/09/23 17:00	1
Simazine	<0.049		0.049	ug/L		08/08/23 16:02	08/09/23 17:00	1
Terbacil	<0.098		0.098	ug/L		08/08/23 16:02	08/09/23 17:00	1
Terbutylazine	<0.098		0.098	ug/L		08/08/23 16:02	08/09/23 17:00	1
Thiobencarb	<0.20		0.20	ug/L		08/08/23 16:02	08/09/23 17:00	1
Total Permethrin (mixed isomers)	<0.20		0.20	ug/L		08/08/23 16:02	08/09/23 17:00	1
trans-Nonachlor	<0.049		0.049	ug/L		08/08/23 16:02	08/09/23 17:00	1
Trifluralin	<0.098		0.098	ug/L		08/08/23 16:02	08/09/23 17:00	1

Tentatively Identified Compound	MB Est. Result	MB Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Cyclohexane, 1-methyl-2-propyl-	0.731	T J N	ug/L		2.31	4291-79-6	08/08/23 16:02	08/09/23 17:00	1
Phenol, 4-(1,1-dimethylpropyl)-	0.958	T J N	ug/L		3.85	80-46-6	08/08/23 16:02	08/09/23 17:00	1
Tetradecanoic acid	1.00	T J N	ug/L		5.81	544-63-8	08/08/23 16:02	08/09/23 17:00	1
Octadec-9-enoic acid	0.798	T J N	ug/L		6.41	1000190-13-7	08/08/23 16:02	08/09/23 17:00	1
Octadecanoic acid	0.693	T J N	ug/L		6.48	57-11-4	08/08/23 16:02	08/09/23 17:00	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	97		70 - 130	08/08/23 16:02	08/09/23 17:00	1
Perylene-d12	93		70 - 130	08/08/23 16:02	08/09/23 17:00	1
Triphenylphosphate	102		70 - 130	08/08/23 16:02	08/09/23 17:00	1

**Lab Sample ID: LCS 380-50800/23-A**  
**Matrix: Water**  
**Analysis Batch: 50998**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 50800**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1-Methylnaphthalene	1.96	2.04		ug/L		104	70 - 130
2,4'-DDD	1.96	2.08		ug/L		106	70 - 130

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# QC Sample Results

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

Job ID: 380-57666-1

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

**Lab Sample ID: LCS 380-50800/23-A**  
**Matrix: Water**  
**Analysis Batch: 50998**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 50800**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4'-DDE	1.96	2.00		ug/L		102	70 - 130
2,4'-DDT	1.96	2.10		ug/L		107	70 - 130
2,4-Dinitrotoluene	1.96	2.02		ug/L		103	70 - 130
2,6-Dinitrotoluene	1.96	2.04		ug/L		104	70 - 130
2-Methylnaphthalene	1.96	2.05		ug/L		104	70 - 130
4,4'-DDD	1.96	2.07		ug/L		105	70 - 130
4,4'-DDE	1.96	2.01		ug/L		102	70 - 130
4,4'-DDT	1.96	2.00		ug/L		102	70 - 130
Acenaphthene	1.96	2.03		ug/L		103	70 - 130
Acenaphthylene	1.96	1.99		ug/L		102	70 - 130
Acetochlor	1.96	2.56		ug/L		130	70 - 130
Alachlor	1.96	2.18		ug/L		111	70 - 130
alpha-BHC	1.96	2.07		ug/L		105	70 - 130
alpha-Chlordane	1.96	1.93		ug/L		98	70 - 130
Anthracene	1.96	2.02		ug/L		103	70 - 130
Atrazine	1.96	2.37		ug/L		121	70 - 130
Benz(a)anthracene	1.96	2.10		ug/L		107	70 - 130
Benzo[a]pyrene	1.96	2.00		ug/L		102	70 - 130
Benzo[b]fluoranthene	1.96	2.15		ug/L		109	70 - 130
Benzo[g,h,i]perylene	1.96	2.12		ug/L		108	70 - 130
Benzo[k]fluoranthene	1.96	2.22		ug/L		113	70 - 130
beta-BHC	1.96	2.06		ug/L		105	70 - 130
Bis(2-ethylhexyl) phthalate	1.96	2.15		ug/L		109	70 - 130
Bromacil	1.96	2.17		ug/L		110	70 - 130
Butachlor	1.96	2.39		ug/L		122	70 - 130
Butylbenzylphthalate	1.96	2.25		ug/L		115	70 - 130
Chlorobenzilate	1.96	2.44		ug/L		124	70 - 130
Chloroneb	1.96	2.02		ug/L		103	70 - 130
Chlorothalonil (Draconil, Bravo)	1.96	1.99		ug/L		101	70 - 130
Chlorpyrifos	1.96	2.23		ug/L		113	70 - 130
Chrysene	1.96	2.08		ug/L		106	70 - 130
delta-BHC	1.96	1.99		ug/L		101	70 - 130
Di(2-ethylhexyl)adipate	1.96	2.22		ug/L		113	70 - 130
Dibenz(a,h)anthracene	1.96	2.31		ug/L		118	70 - 130
Diclorvos (DDVP)	1.96	2.60	*+	ug/L		132	70 - 130
Dieldrin	1.96	2.00		ug/L		102	70 - 130
Diethylphthalate	1.96	2.20		ug/L		112	70 - 130
Dimethylphthalate	1.96	2.16		ug/L		110	70 - 130
Di-n-butyl phthalate	3.93	4.18		ug/L		106	70 - 130
Di-n-octyl phthalate	1.96	2.05		ug/L		104	70 - 130
Endosulfan I (Alpha)	1.96	1.97		ug/L		100	70 - 130
Endosulfan II (Beta)	1.96	2.06		ug/L		105	70 - 130
Endosulfan sulfate	1.96	2.12		ug/L		108	70 - 130
Endrin	1.96	2.16		ug/L		110	70 - 130
Endrin aldehyde	1.96	2.01		ug/L		102	70 - 130
EPTC	1.96	2.15		ug/L		109	70 - 130
Fluoranthene	1.96	2.15		ug/L		110	70 - 130
Fluorene	1.96	2.15		ug/L		109	70 - 130
gamma-Chlordane	1.96	1.93		ug/L		98	70 - 130

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# QC Sample Results

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

Job ID: 380-57666-1

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

**Lab Sample ID: LCS 380-50800/23-A**  
**Matrix: Water**  
**Analysis Batch: 50998**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 50800**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Heptachlor	1.96	2.16		ug/L		110	70 - 130
Heptachlor epoxide (isomer B)	1.96	2.03		ug/L		103	70 - 130
Hexachlorobenzene	1.96	1.89		ug/L		96	70 - 130
Hexachlorocyclopentadiene	1.96	1.88		ug/L		96	70 - 130
Indeno[1,2,3-cd]pyrene	1.96	2.32		ug/L		118	70 - 130
Isophorone	1.96	2.18		ug/L		111	70 - 130
Lindane	1.96	2.11		ug/L		108	70 - 130
Malathion	1.96	2.24		ug/L		114	70 - 130
Methoxychlor	1.96	2.19		ug/L		111	70 - 130
Metolachlor	1.96	2.37		ug/L		120	70 - 130
Molinate	1.96	2.28		ug/L		116	70 - 130
Naphthalene	1.96	1.99		ug/L		101	70 - 130
Parathion	1.96	2.35		ug/L		120	70 - 130
Pendimethalin (Penoxaline)	1.96	2.07		ug/L		105	70 - 130
Phenanthrene	1.96	2.03		ug/L		103	70 - 130
Propachlor	1.96	2.31		ug/L		118	70 - 130
Pyrene	1.96	2.16		ug/L		110	70 - 130
Simazine	1.96	2.34		ug/L		119	70 - 130
Terbacil	1.96	2.47		ug/L		126	70 - 130
Terbutylazine	1.96	2.25		ug/L		115	70 - 130
Thiobencarb	1.96	2.41		ug/L		123	70 - 130
trans-Nonachlor	1.96	1.89		ug/L		96	70 - 130
Trifluralin	1.96	1.98		ug/L		101	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Nitro-m-xylene	98		70 - 130
Perylene-d12	93		70 - 130
Triphenylphosphate	98		70 - 130

**Lab Sample ID: LCSD 380-50800/24-A**  
**Matrix: Water**  
**Analysis Batch: 50998**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 50800**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1-Methylnaphthalene	1.96	2.05		ug/L		104	70 - 130	0	20
2,4'-DDD	1.96	2.13		ug/L		108	70 - 130	2	20
2,4'-DDE	1.96	2.05		ug/L		104	70 - 130	2	20
2,4'-DDT	1.96	2.16		ug/L		110	70 - 130	3	20
2,4-Dinitrotoluene	1.96	2.02		ug/L		103	70 - 130	0	20
2,6-Dinitrotoluene	1.96	2.05		ug/L		104	70 - 130	0	20
2-Methylnaphthalene	1.96	2.07		ug/L		105	70 - 130	1	20
4,4'-DDD	1.96	2.13		ug/L		108	70 - 130	3	20
4,4'-DDE	1.96	2.07		ug/L		105	70 - 130	3	20
4,4'-DDT	1.96	2.04		ug/L		104	70 - 130	2	20
Acenaphthene	1.96	2.04		ug/L		104	70 - 130	1	20
Acenaphthylene	1.96	2.05		ug/L		104	70 - 130	3	20
Acetochlor	1.96	2.60	*+	ug/L		133	70 - 130	2	20
Alachlor	1.96	2.19		ug/L		111	70 - 130	0	20

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-57666-1

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

**Lab Sample ID: LCSD 380-50800/24-A**  
**Matrix: Water**  
**Analysis Batch: 50998**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 50800**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	RPD Limit
							Limits	RPD		
alpha-BHC	1.96	2.05		ug/L		104	70 - 130	1	20	
alpha-Chlordane	1.96	1.94		ug/L		99	70 - 130	1	20	
Anthracene	1.96	2.05		ug/L		104	70 - 130	1	20	
Atrazine	1.96	2.38		ug/L		121	70 - 130	0	20	
Benz(a)anthracene	1.96	2.17		ug/L		110	70 - 130	3	20	
Benzo[a]pyrene	1.96	2.09		ug/L		106	70 - 130	4	20	
Benzo[b]fluoranthene	1.96	2.20		ug/L		112	70 - 130	2	20	
Benzo[g,h,i]perylene	1.96	2.12		ug/L		108	70 - 130	0	20	
Benzo[k]fluoranthene	1.96	2.24		ug/L		114	70 - 130	1	20	
beta-BHC	1.96	2.08		ug/L		106	70 - 130	1	20	
Bis(2-ethylhexyl) phthalate	1.96	2.12		ug/L		108	70 - 130	1	20	
Bromacil	1.96	2.16		ug/L		110	70 - 130	0	20	
Butachlor	1.96	2.42		ug/L		123	70 - 130	1	20	
Butylbenzylphthalate	1.96	2.32		ug/L		118	70 - 130	3	20	
Chlorobenzilate	1.96	2.50		ug/L		127	70 - 130	2	20	
Chloroneb	1.96	2.00		ug/L		102	70 - 130	1	20	
Chlorothalonil (Draconil, Bravo)	1.96	1.96		ug/L		100	70 - 130	2	20	
Chlorpyrifos	1.96	2.27		ug/L		116	70 - 130	2	20	
Chrysene	1.96	2.13		ug/L		108	70 - 130	2	20	
delta-BHC	1.96	2.04		ug/L		104	70 - 130	3	20	
Di(2-ethylhexyl)adipate	1.96	2.29		ug/L		117	70 - 130	3	20	
Dibenz(a,h)anthracene	1.96	2.31		ug/L		117	70 - 130	0	20	
Diclorvos (DDVP)	1.96	2.60	*+	ug/L		132	70 - 130	0	20	
Dieldrin	1.96	2.06		ug/L		105	70 - 130	3	20	
Diethylphthalate	1.96	2.16		ug/L		110	70 - 130	2	20	
Dimethylphthalate	1.96	2.15		ug/L		109	70 - 130	1	20	
Di-n-butyl phthalate	3.93	4.48		ug/L		114	70 - 130	7	20	
Di-n-octyl phthalate	1.96	2.06		ug/L		105	70 - 130	0	20	
Endosulfan I (Alpha)	1.96	2.03		ug/L		103	70 - 130	3	20	
Endosulfan II (Beta)	1.96	2.05		ug/L		104	70 - 130	0	20	
Endosulfan sulfate	1.96	2.17		ug/L		111	70 - 130	3	20	
Endrin	1.96	2.38		ug/L		121	70 - 130	9	20	
Endrin aldehyde	1.96	2.03		ug/L		103	70 - 130	1	20	
EPTC	1.96	2.13		ug/L		108	70 - 130	1	20	
Fluoranthene	1.96	2.21		ug/L		113	70 - 130	3	20	
Fluorene	1.96	2.15		ug/L		110	70 - 130	0	20	
gamma-Chlordane	1.96	1.99		ug/L		101	70 - 130	3	20	
Heptachlor	1.96	2.21		ug/L		112	70 - 130	2	20	
Heptachlor epoxide (isomer B)	1.96	2.08		ug/L		106	70 - 130	2	20	
Hexachlorobenzene	1.96	1.91		ug/L		97	70 - 130	1	20	
Hexachlorocyclopentadiene	1.96	1.91		ug/L		97	70 - 130	1	20	
Indeno[1,2,3-cd]pyrene	1.96	2.34		ug/L		119	70 - 130	1	20	
Isophorone	1.96	2.19		ug/L		112	70 - 130	1	20	
Lindane	1.96	2.08		ug/L		106	70 - 130	2	20	
Malathion	1.96	2.27		ug/L		116	70 - 130	1	20	
Methoxychlor	1.96	2.21		ug/L		112	70 - 130	1	20	
Metolachlor	1.96	2.35		ug/L		120	70 - 130	1	20	
Molinate	1.96	2.31		ug/L		118	70 - 130	2	20	
Naphthalene	1.96	1.99		ug/L		101	70 - 130	0	20	

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-57666-1

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

**Lab Sample ID: LCSD 380-50800/24-A**  
**Matrix: Water**  
**Analysis Batch: 50998**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 50800**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Parathion	1.96	2.41		ug/L		123	70 - 130	3	20
Pendimethalin (Penoxaline)	1.96	2.12		ug/L		108	70 - 130	2	20
Phenanthrene	1.96	2.06		ug/L		105	70 - 130	1	20
Propachlor	1.96	2.34		ug/L		119	70 - 130	1	20
Pyrene	1.96	2.22		ug/L		113	70 - 130	3	20
Simazine	1.96	2.36		ug/L		120	70 - 130	1	20
Terbacil	1.96	2.46		ug/L		125	70 - 130	0	20
Terbutylazine	1.96	2.29		ug/L		116	70 - 130	2	20
Thiobencarb	1.96	2.45		ug/L		125	70 - 130	2	20
trans-Nonachlor	1.96	1.95		ug/L		99	70 - 130	3	20
Trifluralin	1.96	2.01		ug/L		102	70 - 130	1	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2-Nitro-m-xylene	97		70 - 130
Perylene-d12	95		70 - 130
Triphenylphosphate	100		70 - 130

**Lab Sample ID: MRL 380-50800/22-A**  
**Matrix: Water**  
**Analysis Batch: 50998**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 50800**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
1-Methylnaphthalene	0.0982	0.111		ug/L		113	50 - 150
2,4'-DDD	0.0982	0.117		ug/L		119	50 - 150
2,4'-DDE	0.0982	0.104		ug/L		106	50 - 150
2,4'-DDT	0.0982	0.0958	J	ug/L		98	50 - 150
2,4-Dinitrotoluene	0.0982	0.104		ug/L		106	50 - 150
2,6-Dinitrotoluene	0.0982	0.0826	J	ug/L		84	50 - 150
2-Methylnaphthalene	0.0982	0.107		ug/L		109	50 - 150
4,4'-DDD	0.0982	0.0975	J	ug/L		99	50 - 150
4,4'-DDE	0.0982	0.0898	J	ug/L		91	50 - 150
4,4'-DDT	0.0982	0.125		ug/L		128	50 - 150
Acenaphthene	0.0982	0.101		ug/L		103	50 - 150
Acenaphthylene	0.0982	0.0911	J	ug/L		93	50 - 150
Acetochlor	0.0491	0.0521	J	ug/L		106	50 - 150
Alachlor	0.0491	0.0543		ug/L		111	50 - 150
alpha-BHC	0.0982	0.102		ug/L		104	50 - 150
alpha-Chlordane	0.0245	<0.028		ug/L		94	50 - 150
Anthracene	0.0196	0.0206		ug/L		105	50 - 150
Atrazine	0.0491	0.0551		ug/L		112	50 - 150
Benz(a)anthracene	0.0491	0.0470	J	ug/L		96	50 - 150
Benzo[a]pyrene	0.0196	0.0163	J	ug/L		83	50 - 150
Benzo[b]fluoranthene	0.0196	0.0204		ug/L		104	50 - 150
Benzo[g,h,i]perylene	0.0491	0.0443	J	ug/L		90	50 - 150
Benzo[k]fluoranthene	0.0196	0.0178	J	ug/L		91	50 - 150
beta-BHC	0.0982	0.0964	J	ug/L		98	50 - 150
Bis(2-ethylhexyl) phthalate	0.589	0.671		ug/L		114	50 - 150
Bromacil	0.0982	0.134		ug/L		137	50 - 150

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# QC Sample Results

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

Job ID: 380-57666-1

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

**Lab Sample ID: MRL 380-50800/22-A**  
**Matrix: Water**  
**Analysis Batch: 50998**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 50800**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Butachlor	0.0491	0.0581		ug/L		118	50 - 150
Butylbenzylphthalate	0.147	0.155	J	ug/L		105	50 - 150
Chlorobenzilate	0.0982	0.142		ug/L		145	50 - 150
Chloroneb	0.0982	0.106		ug/L		108	50 - 150
Chlorothalonil (Draconil, Bravo)	0.0982	0.122		ug/L		124	50 - 150
Chlorpyrifos	0.0491	0.0513		ug/L		105	50 - 150
Chrysene	0.0196	0.0207		ug/L		105	50 - 150
delta-BHC	0.0982	0.110		ug/L		112	50 - 150
Di(2-ethylhexyl)adipate	0.295	0.322	J	ug/L		109	50 - 150
Dibenz(a,h)anthracene	0.0491	0.0446	J	ug/L		91	50 - 150
Diclorvos (DDVP)	0.0491	0.0920	^3+	ug/L		187	50 - 150
Dieldrin	0.0982	0.111	J	ug/L		113	50 - 150
Diethylphthalate	0.147	0.168	J	ug/L		114	50 - 150
Dimethylphthalate	0.295	0.300	J	ug/L		102	50 - 150
Di-n-butyl phthalate	0.295	0.413	J	ug/L		140	49 - 243
Di-n-octyl phthalate	0.0982	0.0845	J	ug/L		86	50 - 150
Endosulfan I (Alpha)	0.0982	0.0971	J	ug/L		99	50 - 150
Endosulfan II (Beta)	0.0982	0.121		ug/L		123	50 - 150
Endosulfan sulfate	0.0982	0.0928	J	ug/L		95	50 - 150
Endrin	0.0982	0.111		ug/L		113	50 - 150
Endrin aldehyde	0.0982	0.0838	J	ug/L		85	50 - 150
EPTC	0.0982	0.0985		ug/L		100	50 - 150
Fluoranthene	0.0491	0.0527	J	ug/L		107	50 - 150
Fluorene	0.0491	0.0522		ug/L		106	50 - 150
gamma-Chlordane	0.0245	0.0244	J	ug/L		99	50 - 150
Heptachlor	0.0393	0.0487		ug/L		124	50 - 150
Heptachlor epoxide (isomer B)	0.0491	0.0482	J	ug/L		98	50 - 150
Hexachlorobenzene	0.0491	0.0445	J	ug/L		91	50 - 150
Hexachlorocyclopentadiene	0.0491	<0.037		ug/L		74	50 - 150
Indeno[1,2,3-cd]pyrene	0.0491	0.0459	J	ug/L		94	50 - 150
Isophorone	0.0982	0.116	J	ug/L		118	50 - 150
Lindane	0.0393	0.0447		ug/L		114	50 - 150
Malathion	0.0982	0.127		ug/L		129	50 - 150
Methoxychlor	0.0982	0.120		ug/L		123	50 - 150
Metolachlor	0.0491	0.0561		ug/L		114	50 - 150
Molinate	0.0982	0.112		ug/L		114	50 - 150
Naphthalene	0.0982	0.110	J	ug/L		112	50 - 150
Parathion	0.0982	0.129		ug/L		131	50 - 150
Pendimethalin (Penoxaline)	0.0982	0.119		ug/L		121	50 - 150
Phenanthrene	0.0196	0.0236	J	ug/L		120	50 - 150
Propachlor	0.0491	0.0550		ug/L		112	50 - 150
Pyrene	0.0491	0.0527		ug/L		107	50 - 150
Simazine	0.0491	0.0508		ug/L		104	50 - 150
Terbacil	0.0982	0.125		ug/L		127	50 - 150
Terbutylazine	0.0982	0.102		ug/L		104	50 - 150
Thiobencarb	0.0982	0.119	J	ug/L		121	50 - 150
trans-Nonachlor	0.0245	<0.026		ug/L		90	50 - 150
Trifluralin	0.0982	0.0989		ug/L		101	50 - 150

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-57666-1

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

**Lab Sample ID: MRL 380-50800/22-A**  
**Matrix: Water**  
**Analysis Batch: 50998**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 50800**

Surrogate	MRL %Recovery	MRL Qualifier	Limits
2-Nitro-m-xylene	97		70 - 130
Perylene-d12	91		70 - 130
Triphenylphosphate	99		70 - 130

**Lab Sample ID: 380-57639-J-1-A MS**  
**Matrix: Water**  
**Analysis Batch: 50998**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 50800**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1-Methylnaphthalene	<0.099		1.97	2.06		ug/L		104	70 - 130
2,4'-DDD	<0.099		1.97	2.15		ug/L		109	70 - 130
2,4'-DDE	<0.099		1.97	2.04		ug/L		103	70 - 130
2,4'-DDT	<0.099		1.97	2.15		ug/L		109	70 - 130
2,4-Dinitrotoluene	<0.099		1.97	2.21		ug/L		112	70 - 130
2,6-Dinitrotoluene	<0.099		1.97	2.23		ug/L		113	70 - 130
2-Methylnaphthalene	<0.099		1.97	2.09		ug/L		106	70 - 130
4,4'-DDD	<0.099		1.97	2.16		ug/L		109	70 - 130
4,4'-DDE	<0.099		1.97	2.04		ug/L		104	70 - 130
4,4'-DDT	<0.099		1.97	2.03		ug/L		103	70 - 130
Acenaphthene	<0.099		1.97	2.07		ug/L		105	70 - 130
Acenaphthylene	<0.099		1.97	2.13		ug/L		108	70 - 130
Acetochlor	<0.099	F1 **	1.97	2.62	F1	ug/L		133	70 - 130
Alachlor	<0.049		1.97	2.20		ug/L		112	70 - 130
alpha-BHC	<0.099		1.97	2.10		ug/L		106	70 - 130
alpha-Chlordane	<0.049		1.97	1.94		ug/L		98	70 - 130
Anthracene	<0.020		1.97	1.87		ug/L		95	70 - 130
Atrazine	<0.049		1.97	2.44		ug/L		124	70 - 130
Benz(a)anthracene	<0.049		1.97	2.15		ug/L		109	70 - 130
Benzo[a]pyrene	<0.020		1.97	2.03		ug/L		103	70 - 130
Benzo[b]fluoranthene	<0.020		1.97	2.23		ug/L		113	70 - 130
Benzo[g,h,i]perylene	<0.049		1.97	2.11		ug/L		107	70 - 130
Benzo[k]fluoranthene	<0.020		1.97	2.24		ug/L		113	70 - 130
beta-BHC	<0.099		1.97	2.12		ug/L		107	70 - 130
Bis(2-ethylhexyl) phthalate	<0.59		1.97	2.01		ug/L		102	70 - 130
Bromacil	<0.099		1.97	2.29		ug/L		116	70 - 130
Butachlor	<0.049		1.97	2.45		ug/L		124	70 - 130
Butylbenzylphthalate	<0.49		1.97	2.32		ug/L		118	70 - 130
Chlorobenzilate	<0.099		1.97	2.56		ug/L		130	70 - 130
Chloroneb	<0.099		1.97	2.02		ug/L		102	70 - 130
Chlorothalonil (Draconil, Bravo)	<0.099		1.97	2.01		ug/L		102	70 - 130
Chlorpyrifos	<0.049		1.97	2.30		ug/L		117	70 - 130
Chrysene	<0.020		1.97	2.09		ug/L		106	70 - 130
delta-BHC	<0.099		1.97	2.05		ug/L		104	70 - 130
Di(2-ethylhexyl)adipate	<0.59		1.97	2.29		ug/L		100	70 - 130
Dibenz(a,h)anthracene	<0.049		1.97	2.33		ug/L		118	70 - 130
Diclorvos (DDVP)	<0.049	F1 ^3+ **	1.97	2.65	F1	ug/L		135	70 - 130
Dieldrin	<0.20		1.97	2.08		ug/L		106	70 - 130
Diethylphthalate	<0.49		1.97	2.19		ug/L		111	70 - 130



# QC Sample Results

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

Job ID: 380-57666-1

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

**Lab Sample ID: 380-57666-2 DU**  
**Matrix: Drinking Water**  
**Analysis Batch: 50998**

**Client Sample ID: AIEA WELLS PUMPS 1&2 (260)**  
**Prep Type: Total/NA**  
**Prep Batch: 50800**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
2,4'-DDE	<0.098		<0.098		ug/L		NC	20
2,4'-DDT	<0.098		<0.098		ug/L		NC	20
2,4-Dinitrotoluene	<0.098		<0.098		ug/L		NC	20
2,6-Dinitrotoluene	<0.098		<0.098		ug/L		NC	20
2-Methylnaphthalene	<0.098		<0.098		ug/L		NC	20
4,4'-DDD	<0.098		<0.098		ug/L		NC	20
4,4'-DDE	<0.098		<0.098		ug/L		NC	20
4,4'-DDT	<0.098		<0.098		ug/L		NC	20
Acenaphthene	<0.098		<0.098		ug/L		NC	20
Acenaphthylene	<0.098		<0.098		ug/L		NC	20
Acetochlor	<0.098	*+	<0.098	*+	ug/L		NC	20
Alachlor	<0.049		<0.049		ug/L		NC	20
alpha-BHC	<0.098		<0.098		ug/L		NC	20
alpha-Chlordane	<0.049		<0.049		ug/L		NC	20
Anthracene	<0.020		<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	<0.020		<0.020		ug/L		NC	20
Benzo[b]fluoranthene	<0.020		<0.020		ug/L		NC	20
Benzo[g,h,i]perylene	<0.049		<0.049		ug/L		NC	20
Benzo[k]fluoranthene	<0.020		<0.020		ug/L		NC	20
beta-BHC	<0.098		<0.098		ug/L		NC	20
Bis(2-ethylhexyl) phthalate	<0.59		<0.59		ug/L		NC	20
Bromacil	<0.098		<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	<0.098		<0.098		ug/L		NC	20
Chloroneb	<0.098		<0.098		ug/L		NC	20
Chlorothalonil (Draconil, Bravo)	<0.098		<0.098		ug/L		NC	20
Chlorpyrifos	<0.049		<0.049		ug/L		NC	20
Chrysene	<0.020		<0.020		ug/L		NC	20
delta-BHC	<0.098		<0.098		ug/L		NC	20
Di(2-ethylhexyl)adipate	<0.59		<0.59		ug/L		NC	20
Dibenz(a,h)anthracene	<0.049		<0.049		ug/L		NC	20
Diclorvos (DDVP)	<0.049	^3+ *+	<0.049	*+	ug/L		NC	20
Dieldrin	<0.20		<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	<0.98		<0.98		ug/L		NC	20
Di-n-octyl phthalate	<0.098		<0.098		ug/L		NC	20
Endosulfan I (Alpha)	<0.098		<0.098		ug/L		NC	20
Endosulfan II (Beta)	<0.098		<0.098		ug/L		NC	20
Endosulfan sulfate	<0.098		<0.098		ug/L		NC	20
Endrin	<0.098		<0.098		ug/L		NC	20
Endrin aldehyde	<0.098		<0.098		ug/L		NC	20
EPTC	<0.098		<0.098		ug/L		NC	20
Fluoranthene	<0.098		<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

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# QC Sample Results

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

Job ID: 380-57666-1

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

**Lab Sample ID: 380-57666-2 DU**  
**Matrix: Drinking Water**  
**Analysis Batch: 50998**

**Client Sample ID: AIEA WELLS PUMPS 1&2 (260)**  
**Prep Type: Total/NA**  
**Prep Batch: 50800**

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Heptachlor	<0.039		<0.039		ug/L		NC	20
Heptachlor epoxide (isomer B)	<0.049		<0.049		ug/L		NC	20
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	<0.098		<0.098		ug/L		NC	20
Methoxychlor	<0.098		<0.098		ug/L		NC	20
Metolachlor	<0.049		<0.049		ug/L		NC	20
Molinate	<0.098		<0.098		ug/L		NC	20
Naphthalene	<0.29		<0.29		ug/L		NC	20
Parathion	<0.098		<0.098		ug/L		NC	20
Pendimethalin (Penoxaline)	<0.098		<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	<0.098		<0.098		ug/L		NC	20
Terbutylazine	<0.098		<0.098		ug/L		NC	20
Thiobencarb	<0.20		<0.20		ug/L		NC	20
Total Permethrin (mixed isomers)	<0.20		<0.20		ug/L		NC	20
trans-Nonachlor	<0.049		<0.049		ug/L		NC	20
Trifluralin	<0.098		<0.098		ug/L		NC	20
		<b>DU</b>	<b>DU</b>					
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>					
2-Nitro-m-xylene	98		70 - 130					
Perylene-d12	89		70 - 130					
Triphenylphosphate	98		70 - 130					

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

**Lab Sample ID: MBL 380-53035/21-A**  
**Matrix: Water**  
**Analysis Batch: 53385**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 53035**

Analyte	MBL	MBL	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0	ng/L		08/24/23 16:20	08/27/23 03:42	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0	ng/L		08/24/23 16:20	08/27/23 03:42	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		08/24/23 16:20	08/27/23 03:42	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		08/24/23 16:20	08/27/23 03:42	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		08/24/23 16:20	08/27/23 03:42	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		08/24/23 16:20	08/27/23 03:42	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		08/24/23 16:20	08/27/23 03:42	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		08/24/23 16:20	08/27/23 03:42	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		08/24/23 16:20	08/27/23 03:42	1

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# QC Sample Results

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

Job ID: 380-57666-1

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

**Lab Sample ID: MBL 380-53035/21-A**  
**Matrix: Water**  
**Analysis Batch: 53385**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 53035**

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		08/24/23 16:20	08/27/23 03:42	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		08/24/23 16:20	08/27/23 03:42	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		08/24/23 16:20	08/27/23 03:42	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		08/24/23 16:20	08/27/23 03:42	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		08/24/23 16:20	08/27/23 03:42	1
Perfluorobutanoic acid (PFBA)	<0.69		2.0	ng/L		08/24/23 16:20	08/27/23 03:42	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<0.38		2.0	ng/L		08/24/23 16:20	08/27/23 03:42	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<0.37		2.0	ng/L		08/24/23 16:20	08/27/23 03:42	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<0.48		2.0	ng/L		08/24/23 16:20	08/27/23 03:42	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.47		2.0	ng/L		08/24/23 16:20	08/27/23 03:42	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<0.25		2.0	ng/L		08/24/23 16:20	08/27/23 03:42	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.46		2.0	ng/L		08/24/23 16:20	08/27/23 03:42	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.15		2.0	ng/L		08/24/23 16:20	08/27/23 03:42	1
Perfluoropentanoic acid (PFPeA)	<0.38		2.0	ng/L		08/24/23 16:20	08/27/23 03:42	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.36		2.0	ng/L		08/24/23 16:20	08/27/23 03:42	1
Perfluoropentanesulfonic acid (PFPeS)	<0.39		2.0	ng/L		08/24/23 16:20	08/27/23 03:42	1

Isotope Dilution	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	79		50 - 200	08/24/23 16:20	08/27/23 03:42	1
13C6 PFDA	95		50 - 200	08/24/23 16:20	08/27/23 03:42	1
13C5 PFHxA	88		50 - 200	08/24/23 16:20	08/27/23 03:42	1
13C4 PFHpA	88		50 - 200	08/24/23 16:20	08/27/23 03:42	1
13C8 PFOA	93		50 - 200	08/24/23 16:20	08/27/23 03:42	1
13C9 PFNA	91		50 - 200	08/24/23 16:20	08/27/23 03:42	1
13C7 PFUnA	88		50 - 200	08/24/23 16:20	08/27/23 03:42	1
13C2 PFDoA	91		50 - 200	08/24/23 16:20	08/27/23 03:42	1
13C4 PFBA	92		50 - 200	08/24/23 16:20	08/27/23 03:42	1
13C5 PFPeA	90		50 - 200	08/24/23 16:20	08/27/23 03:42	1
13C3 PFBS	90		50 - 200	08/24/23 16:20	08/27/23 03:42	1
13C3 PFHxS	90		50 - 200	08/24/23 16:20	08/27/23 03:42	1
13C8 PFOS	91		50 - 200	08/24/23 16:20	08/27/23 03:42	1
13C2-4:2-FTS	101		50 - 200	08/24/23 16:20	08/27/23 03:42	1
13C2-6:2-FTS	98		50 - 200	08/24/23 16:20	08/27/23 03:42	1
13C2-8:2-FTS	109		50 - 200	08/24/23 16:20	08/27/23 03:42	1

**Lab Sample ID: LCS 380-53035/23-A**  
**Matrix: Water**  
**Analysis Batch: 53385**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 53035**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3OUdS)	60.2	50.3		ng/L		84	70 - 130

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# QC Sample Results

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

Job ID: 380-57666-1

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

**Lab Sample ID: LCS 380-53035/23-A**  
**Matrix: Water**  
**Analysis Batch: 53385**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 53035**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	60.2	52.4		ng/L		87	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	60.2	56.2		ng/L		93	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	60.2	50.5		ng/L		84	70 - 130
Perfluorobutanesulfonic acid (PFBS)	60.2	57.4		ng/L		95	70 - 130
Perfluorodecanoic acid (PFDA)	60.2	55.1		ng/L		92	70 - 130
Perfluorododecanoic acid (PFDoA)	60.2	54.4		ng/L		90	70 - 130
Perfluoroheptanoic acid (PFHpA)	60.2	54.2		ng/L		90	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	60.2	53.4		ng/L		89	70 - 130
Perfluorohexanoic acid (PFHxA)	60.2	56.1		ng/L		93	70 - 130
Perfluorononanoic acid (PFNA)	60.2	54.9		ng/L		91	70 - 130
Perfluorooctanesulfonic acid (PFOS)	60.2	53.3		ng/L		88	70 - 130
Perfluorooctanoic acid (PFOA)	60.2	54.5		ng/L		91	70 - 130
Perfluoroundecanoic acid (PFUnA)	60.2	56.7		ng/L		94	70 - 130
Perfluorobutanoic acid (PFBA)	60.2	57.2		ng/L		95	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	60.2	56.6		ng/L		94	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	60.2	55.0		ng/L		91	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	60.2	54.3		ng/L		90	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	60.2	51.3		ng/L		85	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	60.2	56.1		ng/L		93	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	60.2	54.9		ng/L		91	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	60.2	49.9		ng/L		83	70 - 130
Perfluoropentanoic acid (PFPeA)	60.2	57.9		ng/L		96	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	60.2	53.7		ng/L		89	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	60.2	53.4		ng/L		89	70 - 130

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C3 HFPO-DA	91		50 - 200
13C6 PFDA	95		50 - 200
13C5 PFHxA	94		50 - 200
13C4 PFHpA	96		50 - 200
13C8 PFOA	97		50 - 200
13C9 PFNA	99		50 - 200
13C7 PFUnA	96		50 - 200
13C2 PFDoA	98		50 - 200
13C4 PFBA	93		50 - 200

# QC Sample Results

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

Job ID: 380-57666-1

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

**Lab Sample ID: LCS 380-53035/23-A**  
**Matrix: Water**  
**Analysis Batch: 53385**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 53035**

Isotope Dilution	LCS		Limits
	%Recovery	Qualifier	
13C5 PFPeA	94		50 - 200
13C3 PFBS	92		50 - 200
13C3 PFHxS	96		50 - 200
13C8 PFOS	95		50 - 200
13C2-4:2-FTS	95		50 - 200
13C2-6:2-FTS	93		50 - 200
13C2-8:2-FTS	90		50 - 200

**Lab Sample ID: LCSD 380-53035/24-A**  
**Matrix: Water**  
**Analysis Batch: 53385**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 53035**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	RPD Limit
							Limits	RPD		
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	60.2	55.1		ng/L		92	70 - 130	9	30	
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	60.2	56.2		ng/L		93	70 - 130	7	30	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	60.2	55.4		ng/L		92	70 - 130	1	30	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	60.2	50.6		ng/L		84	70 - 130	0	30	
Perfluorobutanesulfonic acid (PFBS)	60.2	57.4		ng/L		95	70 - 130	0	30	
Perfluorodecanoic acid (PFDA)	60.2	56.5		ng/L		94	70 - 130	2	30	
Perfluorododecanoic acid (PFDoA)	60.2	55.9		ng/L		93	70 - 130	3	30	
Perfluoroheptanoic acid (PFHpA)	60.2	56.4		ng/L		94	70 - 130	4	30	
Perfluorohexanesulfonic acid (PFHxS)	60.2	55.0		ng/L		91	70 - 130	3	30	
Perfluorohexanoic acid (PFHxA)	60.2	64.0		ng/L		106	70 - 130	13	30	
Perfluorononanoic acid (PFNA)	60.2	59.0		ng/L		98	70 - 130	7	30	
Perfluorooctanesulfonic acid (PFOS)	60.2	57.2		ng/L		95	70 - 130	7	30	
Perfluorooctanoic acid (PFOA)	60.2	57.6		ng/L		96	70 - 130	5	30	
Perfluoroundecanoic acid (PFUnA)	60.2	59.2		ng/L		98	70 - 130	4	30	
Perfluorobutanoic acid (PFBA)	60.2	58.2		ng/L		97	70 - 130	2	30	
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	60.2	61.1		ng/L		101	70 - 130	8	30	
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	60.2	55.9		ng/L		93	70 - 130	2	30	
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	60.2	60.3		ng/L		100	70 - 130	10	30	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	60.2	52.3		ng/L		87	70 - 130	2	30	
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	60.2	60.1		ng/L		100	70 - 130	7	30	
Perfluoro-3-methoxypropanoic acid (PFMPA)	60.2	57.1		ng/L		95	70 - 130	4	30	
Perfluoro-4-methoxybutanoic acid (PFMBA)	60.2	58.4		ng/L		97	70 - 130	16	30	

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# QC Sample Results

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

Job ID: 380-57666-1

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

**Lab Sample ID: LCSD 380-53035/24-A**  
**Matrix: Water**  
**Analysis Batch: 53385**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 53035**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluoropentanoic acid (PFPeA)	60.2	61.6		ng/L		102	70 - 130	6	30
Perfluoroheptanesulfonic acid (PFHpS)	60.2	58.3		ng/L		97	70 - 130	8	30
Perfluoropentanesulfonic acid (PFPeS)	60.2	56.2		ng/L		93	70 - 130	5	30

  

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	LCSD Limits
13C3 HFPO-DA	86		50 - 200
13C6 PFDA	98		50 - 200
13C5 PFHxA	85		50 - 200
13C4 PFHpA	93		50 - 200
13C8 PFOA	96		50 - 200
13C9 PFNA	97		50 - 200
13C7 PFUnA	96		50 - 200
13C2 PFDoA	97		50 - 200
13C4 PFBA	84		50 - 200
13C5 PFPeA	86		50 - 200
13C3 PFBS	95		50 - 200
13C3 PFHxS	97		50 - 200
13C8 PFOS	96		50 - 200
13C2-4:2-FTS	106		50 - 200
13C2-6:2-FTS	94		50 - 200
13C2-8:2-FTS	94		50 - 200

**Lab Sample ID: MRL 380-53035/22-A**  
**Matrix: Water**  
**Analysis Batch: 53385**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 53035**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.01	1.85	J	ng/L		92	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.01	1.92	J	ng/L		95	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.01	2.18	J	ng/L		108	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.01	1.73	J	ng/L		86	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.01	2.08	J	ng/L		104	50 - 150
Perfluorodecanoic acid (PFDA)	2.01	1.98	J	ng/L		99	50 - 150
Perfluorododecanoic acid (PFDoA)	2.01	1.96	J	ng/L		98	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.01	2.04	J	ng/L		102	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.01	2.08	J	ng/L		104	50 - 150
Perfluorohexanoic acid (PFHxA)	2.01	2.32	J	ng/L		115	50 - 150
Perfluorononanoic acid (PFNA)	2.01	2.16	J	ng/L		108	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.01	2.04	J	ng/L		102	50 - 150
Perfluorooctanoic acid (PFOA)	2.01	2.14	J	ng/L		107	50 - 150

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-57666-1

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

**Lab Sample ID: MRL 380-53035/22-A**  
**Matrix: Water**  
**Analysis Batch: 53385**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 53035**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroundecanoic acid (PFUnA)	2.01	1.99	J	ng/L		99	50 - 150
Perfluorobutanoic acid (PFBA)	2.01	2.13	J	ng/L		106	50 - 150
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	2.01	2.21	J	ng/L		110	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	2.01	2.06	J	ng/L		103	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	2.01	2.16	J	ng/L		108	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.01	2.15	J	ng/L		107	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	2.01	1.99	J	ng/L		99	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.01	2.02	J	ng/L		101	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.01	2.07	J	ng/L		103	50 - 150
Perfluoropentanoic acid (PFPeA)	2.01	2.13	J	ng/L		106	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	2.01	2.15	J	ng/L		107	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	2.01	1.90	J	ng/L		95	50 - 150

Isotope Dilution	MRL %Recovery	MRL Qualifier	MRL Limits
13C3 HFPO-DA	82		50 - 200
13C6 PFDA	93		50 - 200
13C5 PFHxA	90		50 - 200
13C4 PFHpA	90		50 - 200
13C8 PFOA	95		50 - 200
13C9 PFNA	93		50 - 200
13C7 PFUnA	91		50 - 200
13C2 PFDoA	93		50 - 200
13C4 PFBA	94		50 - 200
13C5 PFPeA	94		50 - 200
13C3 PFBS	87		50 - 200
13C3 PFHxS	88		50 - 200
13C8 PFOS	89		50 - 200
13C2-4:2-FTS	94		50 - 200
13C2-6:2-FTS	87		50 - 200
13C2-8:2-FTS	88		50 - 200

**Lab Sample ID: 380-57432-O-1-D LMS**  
**Matrix: Water**  
**Analysis Batch: 53385**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 53035**

Analyte	Sample Result	Sample Qualifier	Spike Added	LMS Result	LMS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.01	1.90	J	ng/L		94	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.01	1.91	J	ng/L		95	50 - 150

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# QC Sample Results

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

Job ID: 380-57666-1

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

**Lab Sample ID: 380-57432-O-1-D LMS**

**Matrix: Water**

**Analysis Batch: 53385**

**Client Sample ID: Matrix Spike**

**Prep Type: Total/NA**

**Prep Batch: 53035**

Analyte	Sample Result	Sample Qualifier	Spike Added	LMS Result	LMS Qualifier	Unit	D	%Rec	%Rec Limits
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.01	1.90	J	ng/L		95	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0	*5-	2.01	1.85	J *5-	ng/L		92	50 - 150
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.01	2.73		ng/L		109	50 - 150
Perfluorodecanoic acid (PFDA)	<2.0		2.01	2.13		ng/L		106	50 - 150
Perfluorododecanoic acid (PFDoA)	<2.0		2.01	1.99	J	ng/L		99	50 - 150
Perfluoroheptanoic acid (PFHpA)	<2.0		2.01	2.72		ng/L		107	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.01	3.16		ng/L		94	50 - 150
Perfluorohexanoic acid (PFHxA)	<2.0		2.01	3.38		ng/L		110	50 - 150
Perfluorononanoic acid (PFNA)	<2.0		2.01	2.28		ng/L		114	50 - 150
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.01	3.66		ng/L		95	50 - 150
Perfluorooctanoic acid (PFOA)	<2.0		2.01	2.74		ng/L		94	50 - 150
Perfluoroundecanoic acid (PFUnA)	<2.0		2.01	2.17		ng/L		108	50 - 150
Perfluorobutanoic acid (PFBA)	2.2		2.01	4.19		ng/L		101	50 - 150
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.01	2.07		ng/L		103	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.01	2.10		ng/L		104	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.01	2.06		ng/L		103	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.01	1.86	J	ng/L		93	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.01	2.08		ng/L		104	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.01	1.80	J	ng/L		90	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.01	2.23		ng/L		111	50 - 150
Perfluoropentanoic acid (PFPeA)	<2.0		2.01	3.35		ng/L		118	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.01	2.27		ng/L		113	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.01	2.28		ng/L		113	50 - 150

Isotope Dilution	LMS %Recovery	LMS Qualifier	Limits
13C3 HFPO-DA	48	*5-	50 - 200
13C6 PFDA	77		50 - 200
13C5 PFHxA	58		50 - 200
13C4 PFHpA	61		50 - 200
13C8 PFOA	69		50 - 200
13C9 PFNA	72		50 - 200
13C7 PFUnA	77		50 - 200
13C2 PFDoA	87		50 - 200
13C4 PFBA	63		50 - 200
13C5 PFPeA	57		50 - 200
13C3 PFBS	92		50 - 200
13C3 PFHxS	95		50 - 200

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# QC Sample Results

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

Job ID: 380-57666-1

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

**Lab Sample ID: 380-57432-O-1-D LMS**  
**Matrix: Water**  
**Analysis Batch: 53385**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 53035**

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
13C8 PFOS	93		50 - 200
13C2-4:2-FTS	103		50 - 200
13C2-6:2-FTS	96		50 - 200
13C2-8:2-FTS	94		50 - 200

**Lab Sample ID: 380-57432-P-1-C LMSD**  
**Matrix: Water**  
**Analysis Batch: 53385**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 53035**

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>LMSD Result</i>	<i>LMSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.00	1.85	J	ng/L		93	50 - 150	2	50
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.00	1.96	J	ng/L		98	50 - 150	3	50
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.00	2.20		ng/L		110	50 - 150	14	50
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0	*5-	2.00	1.78	J	ng/L		89	50 - 150	4	50
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.00	2.82		ng/L		114	50 - 150	3	50
Perfluorodecanoic acid (PFDA)	<2.0		2.00	2.13		ng/L		106	50 - 150	0	50
Perfluorododecanoic acid (PFDoA)	<2.0		2.00	2.07		ng/L		103	50 - 150	4	50
Perfluoroheptanoic acid (PFHpA)	<2.0		2.00	2.87		ng/L		115	50 - 150	5	50
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.00	3.19		ng/L		96	50 - 150	1	50
Perfluorohexanoic acid (PFHxA)	<2.0		2.00	3.47		ng/L		114	50 - 150	2	50
Perfluorononanoic acid (PFNA)	<2.0		2.00	2.40		ng/L		120	50 - 150	5	50
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.00	3.63		ng/L		94	50 - 150	1	50
Perfluorooctanoic acid (PFOA)	<2.0		2.00	2.88		ng/L		101	50 - 150	5	50
Perfluoroundecanoic acid (PFUnA)	<2.0		2.00	2.08		ng/L		104	50 - 150	4	50
Perfluorobutanoic acid (PFBA)	2.2		2.00	4.33		ng/L		108	50 - 150	3	50
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.00	2.17		ng/L		108	50 - 150	4	50
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.00	2.01		ng/L		100	50 - 150	4	50
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.00	2.37		ng/L		118	50 - 150	14	50
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.00	1.96	J	ng/L		98	50 - 150	5	50
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.00	2.22		ng/L		111	50 - 150	6	50
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.00	1.80	J	ng/L		90	50 - 150	0	50
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.00	2.31		ng/L		115	50 - 150	3	50
Perfluoropentanoic acid (PFPeA)	<2.0		2.00	3.53		ng/L		127	50 - 150	5	50
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.00	2.23		ng/L		111	50 - 150	2	50

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# QC Sample Results

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

Job ID: 380-57666-1

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

**Lab Sample ID: 380-57432-P-1-C LMSD**

**Client Sample ID: Matrix Spike Duplicate**

**Matrix: Water**

**Prep Type: Total/NA**

**Analysis Batch: 53385**

**Prep Batch: 53035**

Analyte	Sample Result	Sample Qualifier	Spike Added	LMSD Result	LMSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.00	2.29		ng/L		114	50 - 150	0	50
<b>LMSD LMSD</b>											
<b>Isotope Dilution</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>								
13C3 HFPO-DA	68		50 - 200								
13C6 PFDA	84		50 - 200								
13C5 PFHxA	78		50 - 200								
13C4 PFHpA	78		50 - 200								
13C8 PFOA	85		50 - 200								
13C9 PFNA	85		50 - 200								
13C7 PFUnA	85		50 - 200								
13C2 PFDoA	90		50 - 200								
13C4 PFBA	83		50 - 200								
13C5 PFPeA	78		50 - 200								
13C3 PFBS	88		50 - 200								
13C3 PFHxS	98		50 - 200								
13C8 PFOS	97		50 - 200								
13C2-4:2-FTS	112		50 - 200								
13C2-6:2-FTS	97		50 - 200								
13C2-8:2-FTS	99		50 - 200								

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

**Lab Sample ID: MBL 380-50958/18-A**

**Client Sample ID: Method Blank**

**Matrix: Water**

**Prep Type: Total/NA**

**Analysis Batch: 51238**

**Prep Batch: 50958**

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		08/09/23 10:40	08/12/23 02:01	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		08/09/23 10:40	08/12/23 02:01	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		08/09/23 10:40	08/12/23 02:01	1
N-methylperfluorooctanesulfonamide acid (NMeFOSAA)	<0.58		2.0	ng/L		08/09/23 10:40	08/12/23 02:01	1
N-ethylperfluorooctanesulfonamide acid (NEtFOSAA)	<0.42		2.0	ng/L		08/09/23 10:40	08/12/23 02:01	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		08/09/23 10:40	08/12/23 02:01	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		08/09/23 10:40	08/12/23 02:01	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		08/09/23 10:40	08/12/23 02:01	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		08/09/23 10:40	08/12/23 02:01	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		08/09/23 10:40	08/12/23 02:01	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		08/09/23 10:40	08/12/23 02:01	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		08/09/23 10:40	08/12/23 02:01	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		08/09/23 10:40	08/12/23 02:01	1
Perfluorotetradecanoic acid (PFTA)	<0.54		2.0	ng/L		08/09/23 10:40	08/12/23 02:01	1
Perfluorotridecanoic acid (PFTrDA)	<0.36		2.0	ng/L		08/09/23 10:40	08/12/23 02:01	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0	ng/L		08/09/23 10:40	08/12/23 02:01	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0	ng/L		08/09/23 10:40	08/12/23 02:01	1

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# QC Sample Results

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

Job ID: 380-57666-1

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

**Lab Sample ID: MBL 380-50958/18-A**  
**Matrix: Water**  
**Analysis Batch: 51238**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 50958**

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		08/09/23 10:40	08/12/23 02:01	1

  

Surrogate	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	106		70 - 130	08/09/23 10:40	08/12/23 02:01	1
13C2 PFHxA	107		70 - 130	08/09/23 10:40	08/12/23 02:01	1
13C2 PFDA	108		70 - 130	08/09/23 10:40	08/12/23 02:01	1
13C3-GenX	104		70 - 130	08/09/23 10:40	08/12/23 02:01	1

**Lab Sample ID: LCS 380-50958/20-A**  
**Matrix: Water**  
**Analysis Batch: 51238**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 50958**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	25.1	24.2		ng/L		97	70 - 130
Perfluorooctanesulfonic acid (PFOS)	23.2	24.8		ng/L		106	70 - 130
Perfluoroundecanoic acid (PFUnA)	25.1	26.4		ng/L		105	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	25.1	24.1		ng/L		96	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	25.1	23.8		ng/L		95	70 - 130
Perfluorohexanoic acid (PFHxA)	25.1	27.9		ng/L		111	70 - 130
Perfluorododecanoic acid (PFDoA)	25.1	25.3		ng/L		101	70 - 130
Perfluorooctanoic acid (PFOA)	25.1	27.4		ng/L		109	70 - 130
Perfluorodecanoic acid (PFDA)	25.1	26.1		ng/L		104	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	22.9	24.1		ng/L		105	70 - 130
Perfluorobutanesulfonic acid (PFBS)	22.2	23.5		ng/L		106	70 - 130
Perfluoroheptanoic acid (PFHpA)	25.1	26.9		ng/L		107	70 - 130
Perfluorononanoic acid (PFNA)	25.1	28.4		ng/L		113	70 - 130
Perfluorotetradecanoic acid (PFTA)	25.1	22.0		ng/L		88	70 - 130
Perfluorotridecanoic acid (PFTTrDA)	25.1	26.5		ng/L		106	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	23.5	25.0		ng/L		106	70 - 130
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	23.7	23.1		ng/L		97	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	23.7	25.4		ng/L		107	70 - 130

  

Surrogate	LCS %Recovery	LCS Qualifier	Limits
d5-NEtFOSAA	99		70 - 130
13C2 PFHxA	110		70 - 130
13C2 PFDA	109		70 - 130

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-57666-1

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

**Lab Sample ID: LCS 380-50958/20-A**  
**Matrix: Water**  
**Analysis Batch: 51238**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 50958**

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

**Lab Sample ID: LCSD 380-50958/21-A**  
**Matrix: Water**  
**Analysis Batch: 51238**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 50958**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	25.1	26.4		ng/L		105	70 - 130	8	30	
Perfluorooctanesulfonic acid (PFOS)	23.2	26.7		ng/L		115	70 - 130	7	30	
Perfluoroundecanoic acid (PFUnA)	25.1	24.7		ng/L		99	70 - 130	6	30	
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	25.1	25.4		ng/L		102	70 - 130	5	30	
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	25.1	25.3		ng/L		101	70 - 130	6	30	
Perfluorohexanoic acid (PFHxA)	25.1	29.2		ng/L		117	70 - 130	5	30	
Perfluorododecanoic acid (PFDoA)	25.1	23.3		ng/L		93	70 - 130	8	30	
Perfluorooctanoic acid (PFOA)	25.1	28.6		ng/L		114	70 - 130	4	30	
Perfluorodecanoic acid (PFDA)	25.1	25.9		ng/L		104	70 - 130	0	30	
Perfluorohexanesulfonic acid (PFHxS)	22.9	25.7		ng/L		113	70 - 130	6	30	
Perfluorobutanesulfonic acid (PFBS)	22.2	24.2		ng/L		109	70 - 130	3	30	
Perfluoroheptanoic acid (PFHpA)	25.1	28.3		ng/L		113	70 - 130	5	30	
Perfluorononanoic acid (PFNA)	25.1	29.9		ng/L		120	70 - 130	5	30	
Perfluorotetradecanoic acid (PFTA)	25.1	21.4		ng/L		85	70 - 130	3	30	
Perfluorotridecanoic acid (PFTrDA)	25.1	24.1		ng/L		96	70 - 130	10	30	
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	23.4	25.8		ng/L		110	70 - 130	3	30	
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	23.7	22.4		ng/L		95	70 - 130	3	30	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	23.7	27.1		ng/L		114	70 - 130	6	30	

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
d5-NEtFOSAA	100		70 - 130
13C2 PFHxA	110		70 - 130
13C2 PFDA	110		70 - 130
13C3-GenX	115		70 - 130

# QC Sample Results

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

Job ID: 380-57666-1

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

**Lab Sample ID: MRL 380-50958/19-A**  
**Matrix: Water**  
**Analysis Batch: 51238**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 50958**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	1.79	J	ng/L		89	50 - 150
Perfluorooctanesulfonic acid (PFOS)	1.86	2.17	J	ng/L		117	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	2.21	J	ng/L		110	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	2.23	J	ng/L		111	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	2.26	J	ng/L		113	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	2.32	J	ng/L		116	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	2.11	J	ng/L		105	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	2.52	J	ng/L		126	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	2.26	J	ng/L		113	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	1.83	2.16	J	ng/L		118	50 - 150
Perfluorobutanesulfonic acid (PFBS)	1.77	2.05	J	ng/L		115	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	2.41	J	ng/L		121	50 - 150
Perfluorononanoic acid (PFNA)	2.00	2.46	J	ng/L		123	50 - 150
Perfluorotetradecanoic acid (PFTA)	2.00	2.01	J	ng/L		100	50 - 150
Perfluorotridecanoic acid (PFTrDA)	2.00	2.15	J	ng/L		107	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	1.87	2.12	J	ng/L		113	50 - 150
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	1.89	2.00	J	ng/L		106	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.89	2.10	J	ng/L		111	50 - 150

Surrogate	MRL %Recovery	MRL Qualifier	Limits
d5-NEtFOSAA	114		70 - 130
13C2 PFHxA	109		70 - 130
13C2 PFDA	112		70 - 130
13C3-GenX	100		70 - 130

**Lab Sample ID: 380-57743-BJ-1-B MSD**  
**Matrix: Water**  
**Analysis Batch: 51238**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 50958**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		25.2	23.8		ng/L		95	70 - 130	1	30
Perfluorooctanesulfonic acid (PFOS)	3.1		23.3	27.5		ng/L		105	70 - 130	0	30
Perfluoroundecanoic acid (PFUnA)	<2.0		25.2	23.6		ng/L		94	70 - 130	4	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		25.2	25.3		ng/L		97	70 - 130	4	30

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-57666-1

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

**Lab Sample ID: 380-57743-BJ-1-B MSD**

**Matrix: Water**

**Analysis Batch: 51238**

**Client Sample ID: Matrix Spike Duplicate**

**Prep Type: Total/NA**

**Prep Batch: 50958**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		25.2	24.5		ng/L		94	70 - 130	10	30
Perfluorohexanoic acid (PFHxA)	<2.0		25.2	30.6		ng/L		114	70 - 130	8	30
Perfluorododecanoic acid (PFDoA)	<2.0		25.2	21.7		ng/L		86	70 - 130	2	30
Perfluorooctanoic acid (PFOA)	2.2		25.2	29.8		ng/L		110	70 - 130	0	30
Perfluorodecanoic acid (PFDA)	<2.0		25.2	23.2		ng/L		92	70 - 130	4	30
Perfluorohexanesulfonic acid (PFHxS)	<2.0		23.0	28.6		ng/L		120	70 - 130	6	30
Perfluorobutanesulfonic acid (PFBS)	<2.0		22.3	27.6		ng/L		120	70 - 130	13	30
Perfluoroheptanoic acid (PFHpA)	<2.0		25.2	30.5		ng/L		115	70 - 130	1	30
Perfluorononanoic acid (PFNA)	<2.0		25.2	26.7		ng/L		104	70 - 130	4	30
Perfluorotetradecanoic acid (PFTA)	<2.0		25.2	20.3		ng/L		81	70 - 130	5	30
Perfluorotridecanoic acid (PFTTrDA)	<2.0		25.2	21.8		ng/L		87	70 - 130	3	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		23.5	23.3		ng/L		99	70 - 130	0	30
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		23.8	20.4		ng/L		86	70 - 130	1	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		23.8	28.0		ng/L		118	70 - 130	5	30
<b>Surrogate</b>											
		<b>MSD %Recovery</b>	<b>MSD Qualifier</b>	<b>Limits</b>							
d5-NEtFOSAA		93		70 - 130							
13C2 PFHxA		116		70 - 130							
13C2 PFDA		96		70 - 130							
13C3-GenX		107		70 - 130							

**Lab Sample ID: 380-57743-BK-1-B MS**

**Matrix: Water**

**Analysis Batch: 51238**

**Client Sample ID: Matrix Spike**

**Prep Type: Total/NA**

**Prep Batch: 50958**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		25.1	23.5		ng/L		93	70 - 130		
Perfluorooctanesulfonic acid (PFOS)	3.1		23.2	27.5		ng/L		105	70 - 130		
Perfluoroundecanoic acid (PFUnA)	<2.0		25.1	24.7		ng/L		98	70 - 130		
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		25.1	24.3		ng/L		93	70 - 130		
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		25.1	22.3		ng/L		85	70 - 130		
Perfluorohexanoic acid (PFHxA)	<2.0		25.1	28.3		ng/L		105	70 - 130		
Perfluorododecanoic acid (PFDoA)	<2.0		25.1	22.1		ng/L		88	70 - 130		
Perfluorooctanoic acid (PFOA)	2.2		25.1	29.7		ng/L		110	70 - 130		
Perfluorodecanoic acid (PFDA)	<2.0		25.1	24.2		ng/L		96	70 - 130		

Eurofins Eaton Analytical Pomona



# QC Association Summary

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

Job ID: 380-57666-1

## GC/MS Semi VOA

### Prep Batch: 50800

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-57666-1	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	525.2	
380-57666-2	AIEA WELLS PUMPS 1&2 (260)	Total/NA	Drinking Water	525.2	
MB 380-50800/21-A	Method Blank	Total/NA	Water	525.2	
LCS 380-50800/23-A	Lab Control Sample	Total/NA	Water	525.2	
LCSD 380-50800/24-A	Lab Control Sample Dup	Total/NA	Water	525.2	
MRL 380-50800/22-A	Lab Control Sample	Total/NA	Water	525.2	
380-57639-J-1-A MS	Matrix Spike	Total/NA	Water	525.2	
380-57666-2 DU	AIEA WELLS PUMPS 1&2 (260)	Total/NA	Drinking Water	525.2	

### Analysis Batch: 50998

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-57666-1	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	525.2	50800
380-57666-2	AIEA WELLS PUMPS 1&2 (260)	Total/NA	Drinking Water	525.2	50800
MB 380-50800/21-A	Method Blank	Total/NA	Water	525.2	50800
LCS 380-50800/23-A	Lab Control Sample	Total/NA	Water	525.2	50800
LCSD 380-50800/24-A	Lab Control Sample Dup	Total/NA	Water	525.2	50800
MRL 380-50800/22-A	Lab Control Sample	Total/NA	Water	525.2	50800
380-57639-J-1-A MS	Matrix Spike	Total/NA	Water	525.2	50800
380-57666-2 DU	AIEA WELLS PUMPS 1&2 (260)	Total/NA	Drinking Water	525.2	50800

## LCMS

### Prep Batch: 50958

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-57666-1	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	537.1 DW	
380-57666-2	AIEA WELLS PUMPS 1&2 (260)	Total/NA	Drinking Water	537.1 DW	
380-57666-5	FB: AIEA GULCH WELLS PUMP 2	Total/NA	Water	537.1 DW	
380-57666-6	FB: AIEA WELLS PUMPS 1&2 (260)	Total/NA	Water	537.1 DW	
MBL 380-50958/18-A	Method Blank	Total/NA	Water	537.1 DW	
LCS 380-50958/20-A	Lab Control Sample	Total/NA	Water	537.1 DW	
LCSD 380-50958/21-A	Lab Control Sample Dup	Total/NA	Water	537.1 DW	
MRL 380-50958/19-A	Lab Control Sample	Total/NA	Water	537.1 DW	
380-57743-BJ-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	537.1 DW	
380-57743-BK-1-B MS	Matrix Spike	Total/NA	Water	537.1 DW	

### Analysis Batch: 51238

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-57666-1	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	537.1	50958
380-57666-2	AIEA WELLS PUMPS 1&2 (260)	Total/NA	Drinking Water	537.1	50958
380-57666-5	FB: AIEA GULCH WELLS PUMP 2	Total/NA	Water	537.1	50958
380-57666-6	FB: AIEA WELLS PUMPS 1&2 (260)	Total/NA	Water	537.1	50958
MBL 380-50958/18-A	Method Blank	Total/NA	Water	537.1	50958
LCS 380-50958/20-A	Lab Control Sample	Total/NA	Water	537.1	50958
LCSD 380-50958/21-A	Lab Control Sample Dup	Total/NA	Water	537.1	50958
MRL 380-50958/19-A	Lab Control Sample	Total/NA	Water	537.1	50958
380-57743-BJ-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	537.1	50958
380-57743-BK-1-B MS	Matrix Spike	Total/NA	Water	537.1	50958

### Prep Batch: 53035

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-57666-1	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	533	

Eurofins Eaton Analytical Pomona

# QC Association Summary

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

Job ID: 380-57666-1

## LCMS (Continued)

### Prep Batch: 53035 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-57666-2	AIEA WELLS PUMPS 1&2 (260)	Total/NA	Drinking Water	533	
380-57666-6	FB: AIEA WELLS PUMPS 1&2 (260)	Total/NA	Water	533	
MBL 380-53035/21-A	Method Blank	Total/NA	Water	533	
LCS 380-53035/23-A	Lab Control Sample	Total/NA	Water	533	
LCSD 380-53035/24-A	Lab Control Sample Dup	Total/NA	Water	533	
MRL 380-53035/22-A	Lab Control Sample	Total/NA	Water	533	
380-57432-O-1-D LMS	Matrix Spike	Total/NA	Water	533	
380-57432-P-1-C LMSD	Matrix Spike Duplicate	Total/NA	Water	533	

### Analysis Batch: 53385

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-57666-1	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	533	53035
380-57666-2	AIEA WELLS PUMPS 1&2 (260)	Total/NA	Drinking Water	533	53035
380-57666-6	FB: AIEA WELLS PUMPS 1&2 (260)	Total/NA	Water	533	53035
MBL 380-53035/21-A	Method Blank	Total/NA	Water	533	53035
LCS 380-53035/23-A	Lab Control Sample	Total/NA	Water	533	53035
LCSD 380-53035/24-A	Lab Control Sample Dup	Total/NA	Water	533	53035
MRL 380-53035/22-A	Lab Control Sample	Total/NA	Water	533	53035
380-57432-O-1-D LMS	Matrix Spike	Total/NA	Water	533	53035
380-57432-P-1-C LMSD	Matrix Spike Duplicate	Total/NA	Water	533	53035



# Lab Chronicle

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

Job ID: 380-57666-1

## Client Sample ID: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-57666-1

Date Collected: 08/02/23 11:00

Matrix: Drinking Water

Date Received: 08/04/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	525.2			50800	G9MN	EA POM	08/08/23 17:24
Total/NA	Analysis	525.2		1	50998	Q8LA	EA POM	08/09/23 23:29
Total/NA	Prep	533			53035	UMV1	EA POM	08/24/23 16:20
Total/NA	Analysis	533		1	53385	UKYM	EA POM	08/27/23 06:07
Total/NA	Prep	537.1 DW			50958	US1B	EA POM	08/09/23 10:40
Total/NA	Analysis	537.1		1	51238	UKYM	EA POM	08/12/23 04:17

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

Lab Sample ID: 380-57666-2

Date Collected: 08/02/23 11:30

Matrix: Drinking Water

Date Received: 08/04/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	525.2			50800	G9MN	EA POM	08/08/23 17:24
Total/NA	Analysis	525.2		1	50998	Q8LA	EA POM	08/09/23 23:49
Total/NA	Prep	533			53035	UMV1	EA POM	08/24/23 16:20
Total/NA	Analysis	533		1	53385	UKYM	EA POM	08/27/23 06:27
Total/NA	Prep	537.1 DW			50958	US1B	EA POM	08/09/23 10:40
Total/NA	Analysis	537.1		1	51238	UKYM	EA POM	08/12/23 04:26

## Client Sample ID: FB: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-57666-5

Date Collected: 08/02/23 11:00

Matrix: Water

Date Received: 08/04/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	537.1 DW			50958	US1B	EA POM	08/09/23 10:40
Total/NA	Analysis	537.1		1	51238	UKYM	EA POM	08/12/23 04:47

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

Lab Sample ID: 380-57666-6

Date Collected: 08/02/23 11:30

Matrix: Water

Date Received: 08/04/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			53035	UMV1	EA POM	08/24/23 16:20
Total/NA	Analysis	533		1	53385	UKYM	EA POM	08/27/23 06:58
Total/NA	Prep	537.1 DW			50958	US1B	EA POM	08/09/23 10:40
Total/NA	Analysis	537.1		1	51238	UKYM	EA POM	08/12/23 04:58

### 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: 380-57666-1

## 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: 380-57666-1

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

Analysis Method	Prep Method	Matrix	Analyte
525.2	525.2	Drinking Water	Malathion
525.2	525.2	Drinking Water	Molinate
525.2	525.2	Drinking Water	Naphthalene
525.2	525.2	Drinking Water	Parathion
525.2	525.2	Drinking Water	Pendimethalin (Penoxaline)
525.2	525.2	Drinking Water	Phenanthrene
525.2	525.2	Drinking Water	Pyrene
525.2	525.2	Drinking Water	Terbacil
525.2	525.2	Drinking Water	Terbutylazine
525.2	525.2	Drinking Water	Thiobencarb
525.2	525.2	Drinking Water	Total Permethrin (mixed isomers)
525.2	525.2	Drinking Water	trans-Nonachlor
525.2	525.2	Drinking Water	Trifluralin
533	533	Drinking Water	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)
533	533	Drinking Water	1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)
533	533	Drinking Water	1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)
533	533	Drinking Water	1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)
533	533	Drinking Water	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)
533	533	Drinking Water	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)
533	533	Drinking Water	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)
533	533	Drinking Water	Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)
533	533	Drinking Water	Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)
533	533	Drinking Water	Perfluoro-3-methoxypropanoic acid (PFMPA)
533	533	Drinking Water	Perfluoro-4-methoxybutanoic acid (PFMBA)
533	533	Drinking Water	Perfluorobutanoic acid (PFBA)
533	533	Drinking Water	Perfluoroheptanesulfonic acid (PFHpS)
533	533	Drinking Water	Perfluoropentanesulfonic acid (PFPeS)
533	533	Drinking Water	Perfluoropentanoic acid (PFPeA)
533	533	Water	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)
533	533	Water	1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)
533	533	Water	1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)
533	533	Water	1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)
533	533	Water	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)
533	533	Water	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)

# Accreditation/Certification Summary

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

Job ID: 380-57666-1

## Laboratory: Eurofins Eaton Analytical Pomona (Continued)

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

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

# Method Summary

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

Job ID: 380-57666-1

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: 380-57666-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	PWSID Number
380-57666-1	AIEA GULCH WELLS PUMP 2	Drinking Water	08/02/23 11:00	08/04/23 09:30	HI0000331
380-57666-2	AIEA WELLS PUMPS 1&2 (260)	Drinking Water	08/02/23 11:30	08/04/23 09:30	HI0000331
380-57666-5	FB: AIEA GULCH WELLS PUMP 2	Water	08/02/23 11:00	08/04/23 09:30	
380-57666-6	FB: AIEA WELLS PUMPS 1&2 (260)	Water	08/02/23 11:30	08/04/23 09:30	

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

**Chain of Custody Record**



<b>Client Information</b>		Lab PM Arada, Rachelle		Carrier Tracking No(s) 380-27941-2757 2	
Client Contact Dr Ron Fenstermacher		E-Mail Rachelle.Arada@et.euromisus.com		Page Page 2 of 2	
Company City & County of Honolulu		PWSID		Job #	
Address 630 South Beretania Street, Chemistry Lab		Due Date Requested:		Total Number of containers	
City Honolulu		TAT Requested (days):		Analysis Requested	
State, Zip HI, 96843		Compliance Project: Δ No		533 - All Analytes	
Phone 808-748-5091 (tel)		PO # C20525101 exp 05312023		537.1_DW_PREC - 537.1 Full List	
Email r Fenstermacher@hbws.org		WO #		525.2_PREC - (MOD) 525plus PLUS TICs	
Project Name RED-HILL/HBWS sites Event Desc RUSH Weekly Red Hill		Project # 38001111		SUBCONTRACT - 8915 Diesel LL (EAL) and Motor Oil	
Site		SSOW#		SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)	
<b>Sample Identification</b>		<b>Sample Date</b>		<b>Sample Time</b>	
MOANALUA WELLS					
AIEA GULCH WELLS PUMP2		8/2/2023		1100	
AIEA WELLS PUMPS 1&2 (260)		8/2/2023		1130	
HALAWA WELLS UNITS 1&2		8/2/2023		1000	
FB MOANALUA WELLS					
FB AIEA GULCH WELLS PUMP2		8/2/2023			
FB AIEA WELLS PUMPS 1&2 (260)		8/2/2023			
FB HALAWA WELLS UNITS 1&2		8/2/2023			
<b>Possible Hazard Identification</b>		<input type="checkbox"/> Non-Hazard		<input type="checkbox"/> Flammable	
Deliverable Requested I, II, III, IV, Other (specify)		<input type="checkbox"/> Skin Irritant		<input type="checkbox"/> Unknown	
Empty Kit Relinquished by		Date		Time	
Relinquished by		8/2/23		1245	
Relinquished by		Date/Time		Company	
Relinquished by		Date/Time		Company	
Custody Seals Intact: Δ Yes Δ No		Custody Seal No		Cooler Temperature(s) °C and Other Remarks	
				(752A) -02°C COFFEE/NO FROZEN	



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

**Chain of Custody Record**



<b>Client Information</b>		Lab PM Arada, Rachelle		COC No 380-27941-2757 2											
Client Contact: Dr. Ron Fenstermacher		E-Mail Rachelle.Arada@et.euronisus.com		Page Page 2 of 2											
Company City & County of Honolulu		PWSID		Job #											
Address 630 South Beretania Street, Chemistry Lab		Due Date Requested:		Carmer Tracking Not(s)											
City: Honolulu		TAT Requested (days):		State of Origin											
State, Zip HI, 96843		Compliance Project: Δ No													
Phone 808-748-5091 (tel)		PO # C20525101 exp 06312023													
Email rfenstermacher@hbws.org		WO #													
Project Name: RED-HILL/HBWS sites Event Desc RUSH Weekly Red Hill		Project # 38001111													
Site		SSOW#													
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=water, BT=Teste, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUBCONTRACT - 625 PAH Physis LL (EAL) + TICS	SUBCONTRACT - 8015 Gas (Purgable) LL (EAL)	SUBCONTRACT - 8915 Diesel LL (EAL) and Motor Oil	525.2.PREC - (MOD) 525plus PLUS TICS	SUBCONTRACT - 8015 Gas (Purgable) LL (EAL)	537.1.DW.PREC - 537.1 Full List	533 - All Analytes	Analysis Requested	Special Instructions/Note:
MOANALUA WELLS				Water											
AIEA GULCH WELLS PUMP2	8/2/2023	1100	G	Water											Pump 2
AIEA WELLS PUMPS 1&2 (260)	8/2/2023	1130	G	Water											Pump 2
HALAWA WELLS UNITS 1&2	8/2/2023	1000	G	Water											Pump 1
FB MOANALUA WELLS				Water											07724 4462 3720 / 57'-55"
FB AIEA GULCH WELLS PUMP2	8/2/2023			Water											07724 4462 3731 / 24' 22"
FB AIEA WELLS PUMPS 1&2 (260)	8/2/2023			Water											07724 4462 3742 / 41'-6.9"
FB HALAWA WELLS UNITS 1&2	8/2/2023			Water											
<b>Possible Hazard Identification</b>		Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological <input type="checkbox"/>		Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/>		Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		Special Instructions/QC Requirements:		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		Method of Shipment: FED EX 3 COOLERS ↑		Date/Time: 08/04/2023 09:00 Company: GC	
Deliverable Requested I, II, III, IV, Other (specify)		Empty Kit Relinquished by:		Date/Time: 8/2/2023 1245		Company: HBWS		Received by: [Signature]		Date/Time: 08/04/2023 09:00		Company: GC		Received by: [Signature]	
Relinquished by: [Signature]		Date/Time:		Date/Time:		Company:		Received by:		Date/Time:		Company:		Received by:	
Relinquished by:		Date/Time:		Date/Time:		Company:		Received by:		Date/Time:		Company:		Received by:	
Custody Seals Intact Δ Yes Δ No		Custody Seal No		Cooler Temperature(s) °C and Other Remarks (752A) - 0 2° CORRECTION		Cooler Temperature(s) °C and Other Remarks GFC PRESEN		Cooler Temperature(s) °C and Other Remarks		Cooler Temperature(s) °C and Other Remarks		Cooler Temperature(s) °C and Other Remarks		Cooler Temperature(s) °C and Other Remarks	



## Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-57666-1

**Login Number: 57666**

**List Source: Eurofins Eaton Analytical Pomona**

**List Number: 1**

**Creator: Elyas, Matthew**

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.	False	Did not receive samples from a site HALAWA WELLS UNIT 1&2
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	