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# ANALYTICAL REPORT

## PREPARED FOR

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City & County of Honolulu  
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## JOB DESCRIPTION

RED-HILL  
RUSH Weekly Red Hill

## JOB NUMBER

380-59480-1

# 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: 380-59480-1

## 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
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Case Narrative

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

Job ID: 380-59480-1

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## Job ID: 380-59480-1

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### Laboratory: Eurofins Eaton Analytical Pomona

#### Narrative

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#### Job Narrative 380-59480-1

#### Comments

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

No additional comments.

#### Receipt

The samples were received on 8/17/2023 9:39 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 0.4° C and 3.1° C.

#### GC/MS Semi VOA

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

#### LCMS

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

#### Organic Prep

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



# Detection Summary

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

Job ID: 380-59480-1

**Client Sample ID: MOANALUA WELLS**  
**PWSID Number: HI0000331**

**Lab Sample ID: 380-59480-1**

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.0		2.0	ng/L	1		533	Total/NA

**Client Sample ID: HALAWA WELLS UNITS 1 & 2**  
**PWSID Number: HI0000331**

**Lab Sample ID: 380-59480-2**

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	2.2		2.0	ng/L	1		533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.0		2.0	ng/L	1		533	Total/NA
Perfluoropentanoic acid (PFPeA)	2.5		2.0	ng/L	1		533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.3		2.0	ng/L	1		537.1	Total/NA
Perfluorohexanoic acid (PFHxA)	2.2		2.0	ng/L	1		537.1	Total/NA
Perfluorooctanoic acid (PFOA)	2.0		2.0	ng/L	1		537.1	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.7		2.0	ng/L	1		537.1	Total/NA

**Client Sample ID: FB MOANALUA WELLS**  
**PWSID Number: HI0000331**

**Lab Sample ID: 380-59480-5**

No Detections.

**Client Sample ID: FB HALAWA WELLS UNITS 1 & 2**  
**PWSID Number: HI0000331**

**Lab Sample ID: 380-59480-6**

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: 380-59480-1

**Client Sample ID: MOANALUA WELLS**

**Lab Sample ID: 380-59480-1**

**Date Collected: 08/15/23 11:00**

**Matrix: Drinking Water**

**Date Received: 08/17/23 09:39**

**PWSID Number: HI0000331**

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:33	1
2,4'-DDD	<0.099	^3+	0.099	ug/L		08/18/23 14:03	08/20/23 17:33	1
2,4'-DDE	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:33	1
2,4'-DDT	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:33	1
2,4-Dinitrotoluene	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:33	1
2,6-Dinitrotoluene	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:33	1
2-Methylnaphthalene	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:33	1
4,4'-DDD	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:33	1
4,4'-DDE	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:33	1
4,4'-DDT	<0.099	^3+	0.099	ug/L		08/18/23 14:03	08/20/23 17:33	1
Acenaphthene	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:33	1
Acenaphthylene	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:33	1
Acetochlor	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:33	1
Alachlor	<0.049		0.049	ug/L		08/18/23 14:03	08/20/23 17:33	1
alpha-BHC	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:33	1
alpha-Chlordane	<0.049		0.049	ug/L		08/18/23 14:03	08/20/23 17:33	1
Anthracene	<0.020		0.020	ug/L		08/18/23 14:03	08/20/23 17:33	1
Atrazine	<0.049		0.049	ug/L		08/18/23 14:03	08/20/23 17:33	1
Benz(a)anthracene	<0.049		0.049	ug/L		08/18/23 14:03	08/20/23 17:33	1
Benzo[a]pyrene	<0.020	^3+	0.020	ug/L		08/18/23 14:03	08/20/23 17:33	1
Benzo[b]fluoranthene	<0.020	^3+	0.020	ug/L		08/18/23 14:03	08/20/23 17:33	1
Benzo[g,h,i]perylene	<0.049		0.049	ug/L		08/18/23 14:03	08/20/23 17:33	1
Benzo[k]fluoranthene	<0.020	^3+	0.020	ug/L		08/18/23 14:03	08/20/23 17:33	1
beta-BHC	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:33	1
Bis(2-ethylhexyl) phthalate	<0.59		0.59	ug/L		08/18/23 14:03	08/20/23 17:33	1
Bromacil	<0.099	^3+	0.099	ug/L		08/18/23 14:03	08/20/23 17:33	1
Butachlor	<0.049	^3+	0.049	ug/L		08/18/23 14:03	08/20/23 17:33	1
Butylbenzylphthalate	<0.49	^3+	0.49	ug/L		08/18/23 14:03	08/20/23 17:33	1
Chlorobenzilate	<0.099	^3+	0.099	ug/L		08/18/23 14:03	08/20/23 17:33	1
Chloroneb	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:33	1
Chlorothalonil (Draconil, Bravo)	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:33	1
Chlorpyrifos	<0.049		0.049	ug/L		08/18/23 14:03	08/20/23 17:33	1
Chrysene	<0.020		0.020	ug/L		08/18/23 14:03	08/20/23 17:33	1
delta-BHC	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:33	1
Di(2-ethylhexyl)adipate	<0.59	^3+ *+	0.59	ug/L		08/18/23 14:03	08/20/23 17:33	1
Dibenz(a,h)anthracene	<0.049		0.049	ug/L		08/18/23 14:03	08/20/23 17:33	1
Diclorvos (DDVP)	<0.049		0.049	ug/L		08/18/23 14:03	08/20/23 17:33	1
Dieldrin	<0.20		0.20	ug/L		08/18/23 14:03	08/20/23 17:33	1
Diethylphthalate	<0.49		0.49	ug/L		08/18/23 14:03	08/20/23 17:33	1
Dimethylphthalate	<0.49		0.49	ug/L		08/18/23 14:03	08/20/23 17:33	1
Di-n-butyl phthalate	<0.99		0.99	ug/L		08/18/23 14:03	08/20/23 17:33	1
Di-n-octyl phthalate	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:33	1
Endosulfan I (Alpha)	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:33	1
Endosulfan II (Beta)	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:33	1
Endosulfan sulfate	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:33	1
Endrin	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:33	1
Endrin aldehyde	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:33	1
EPTC	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:33	1
Fluoranthene	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:33	1

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# Client Sample Results

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

Job ID: 380-59480-1

**Client Sample ID: MOANALUA WELLS**

**Lab Sample ID: 380-59480-1**

**Date Collected: 08/15/23 11:00**

**Matrix: Drinking Water**

**Date Received: 08/17/23 09:39**

**PWSID Number: HI0000331**

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	<0.049		0.049	ug/L		08/18/23 14:03	08/20/23 17:33	1
gamma-Chlordane	<0.049		0.049	ug/L		08/18/23 14:03	08/20/23 17:33	1
Heptachlor	<0.040		0.040	ug/L		08/18/23 14:03	08/20/23 17:33	1
Heptachlor epoxide (isomer B)	<0.049		0.049	ug/L		08/18/23 14:03	08/20/23 17:33	1
Hexachlorobenzene	<0.049		0.049	ug/L		08/18/23 14:03	08/20/23 17:33	1
Hexachlorocyclopentadiene	<0.049		0.049	ug/L		08/18/23 14:03	08/20/23 17:33	1
Indeno[1,2,3-cd]pyrene	<0.049		0.049	ug/L		08/18/23 14:03	08/20/23 17:33	1
Isophorone	<0.49		0.49	ug/L		08/18/23 14:03	08/20/23 17:33	1
Lindane	<0.040		0.040	ug/L		08/18/23 14:03	08/20/23 17:33	1
Malathion	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:33	1
Methoxychlor	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:33	1
Metolachlor	<0.049		0.049	ug/L		08/18/23 14:03	08/20/23 17:33	1
Molinate	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:33	1
Naphthalene	<0.30		0.30	ug/L		08/18/23 14:03	08/20/23 17:33	1
Parathion	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:33	1
Pendimethalin (Penoxaline)	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:33	1
Phenanthrene	<0.040		0.040	ug/L		08/18/23 14:03	08/20/23 17:33	1
Propachlor	<0.049		0.049	ug/L		08/18/23 14:03	08/20/23 17:33	1
Pyrene	<0.049		0.049	ug/L		08/18/23 14:03	08/20/23 17:33	1
Simazine	<0.049		0.049	ug/L		08/18/23 14:03	08/20/23 17:33	1
Terbacil	<0.099	^3+	0.099	ug/L		08/18/23 14:03	08/20/23 17:33	1
Terbutylazine	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:33	1
Thiobencarb	<0.20		0.20	ug/L		08/18/23 14:03	08/20/23 17:33	1
Total Permethrin (mixed isomers)	<0.20		0.20	ug/L		08/18/23 14:03	08/20/23 17:33	1
trans-Nonachlor	<0.049		0.049	ug/L		08/18/23 14:03	08/20/23 17:33	1
Trifluralin	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:33	1

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Unknown	0.83	T J	ug/L		2.36	N/A	08/18/23 14:03	08/20/23 17:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	99		70 - 130	08/18/23 14:03	08/20/23 17:33	1
Perylene-d12	96		70 - 130	08/18/23 14:03	08/20/23 17:33	1
Triphenylphosphate	114		70 - 130	08/18/23 14:03	08/20/23 17:33	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		08/30/23 14:48	09/01/23 19:51	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 19:51	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 19:51	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 19:51	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 19:51	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 19:51	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 19:51	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 19:51	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 19:51	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 19:51	1

Eurofins Eaton Analytical Pomona



# Client Sample Results

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

Job ID: 380-59480-1

**Client Sample ID: MOANALUA WELLS**

**Lab Sample ID: 380-59480-1**

Date Collected: 08/15/23 11:00

Matrix: Drinking Water

Date Received: 08/17/23 09:39

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		08/30/23 14:48	09/01/23 19:51	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 19:51	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 19:51	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 19:51	1
<b>Perfluorobutanoic acid (PFBA)</b>	<b>2.0</b>		2.0	ng/L		08/30/23 14:48	09/01/23 19:51	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 19:51	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 19:51	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 19:51	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 19:51	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 19:51	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 19:51	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 19:51	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 19:51	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 19:51	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 19:51	1
<b>Isotope Dilution</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>			<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
13C3 HFPO-DA	92		50 - 200			08/30/23 14:48	09/01/23 19:51	1
13C6 PFDA	97		50 - 200			08/30/23 14:48	09/01/23 19:51	1
13C5 PFHxA	102		50 - 200			08/30/23 14:48	09/01/23 19:51	1
13C4 PFHpA	98		50 - 200			08/30/23 14:48	09/01/23 19:51	1
13C8 PFOA	99		50 - 200			08/30/23 14:48	09/01/23 19:51	1
13C9 PFNA	101		50 - 200			08/30/23 14:48	09/01/23 19:51	1
13C7 PFUnA	101		50 - 200			08/30/23 14:48	09/01/23 19:51	1
13C2 PFDoA	103		50 - 200			08/30/23 14:48	09/01/23 19:51	1
13C4 PFBA	91		50 - 200			08/30/23 14:48	09/01/23 19:51	1
13C5 PFPeA	92		50 - 200			08/30/23 14:48	09/01/23 19:51	1
13C3 PFBS	104		50 - 200			08/30/23 14:48	09/01/23 19:51	1
13C3 PFHxS	101		50 - 200			08/30/23 14:48	09/01/23 19:51	1
13C8 PFOS	107		50 - 200			08/30/23 14:48	09/01/23 19:51	1
13C2-4:2-FTS	118		50 - 200			08/30/23 14:48	09/01/23 19:51	1
13C2-6:2-FTS	110		50 - 200			08/30/23 14:48	09/01/23 19:51	1
13C2-8:2-FTS	101		50 - 200			08/30/23 14:48	09/01/23 19:51	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:17	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:17	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:17	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:17	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:17	1

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# Client Sample Results

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

Job ID: 380-59480-1

## Client Sample ID: MOANALUA WELLS

## Lab Sample ID: 380-59480-1

Date Collected: 08/15/23 11:00

Matrix: Drinking Water

Date Received: 08/17/23 09:39

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		08/21/23 06:13	08/23/23 05:17	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:17	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:17	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:17	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:17	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:17	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:17	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:17	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:17	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:17	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:17	1
11-Chloroeicosafuoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:17	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:17	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	85		70 - 130			08/21/23 06:13	08/23/23 05:17	1
13C2 PFHxA	120		70 - 130			08/21/23 06:13	08/23/23 05:17	1
13C2 PFDA	103		70 - 130			08/21/23 06:13	08/23/23 05:17	1
13C3-GenX	105		70 - 130			08/21/23 06:13	08/23/23 05:17	1

## Client Sample ID: HALAWA WELLS UNITS 1 & 2

## Lab Sample ID: 380-59480-2

Date Collected: 08/15/23 10:00

Matrix: Drinking Water

Date Received: 08/17/23 09:39

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:52	1
2,4'-DDD	<0.099	^3+	0.099	ug/L		08/18/23 14:03	08/20/23 17:52	1
2,4'-DDE	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:52	1
2,4'-DDT	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:52	1
2,4-Dinitrotoluene	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:52	1
2,6-Dinitrotoluene	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:52	1
2-Methylnaphthalene	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:52	1
4,4'-DDD	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:52	1
4,4'-DDE	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:52	1
4,4'-DDT	<0.099	^3+	0.099	ug/L		08/18/23 14:03	08/20/23 17:52	1
Acenaphthene	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:52	1
Acenaphthylene	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:52	1
Acetochlor	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:52	1
Alachlor	<0.049		0.049	ug/L		08/18/23 14:03	08/20/23 17:52	1
alpha-BHC	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:52	1
alpha-Chlordane	<0.049		0.049	ug/L		08/18/23 14:03	08/20/23 17:52	1
Anthracene	<0.020		0.020	ug/L		08/18/23 14:03	08/20/23 17:52	1
Atrazine	<0.049		0.049	ug/L		08/18/23 14:03	08/20/23 17:52	1
Benz(a)anthracene	<0.049		0.049	ug/L		08/18/23 14:03	08/20/23 17:52	1
Benzo[a]pyrene	<0.020	^3+	0.020	ug/L		08/18/23 14:03	08/20/23 17:52	1
Benzo[b]fluoranthene	<0.020	^3+	0.020	ug/L		08/18/23 14:03	08/20/23 17:52	1
Benzo[g,h,i]perylene	<0.049		0.049	ug/L		08/18/23 14:03	08/20/23 17:52	1

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# Client Sample Results

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

Job ID: 380-59480-1

**Client Sample ID: HALAWA WELLS UNITS 1 & 2**

**Lab Sample ID: 380-59480-2**

Date Collected: 08/15/23 10:00

Matrix: Drinking Water

Date Received: 08/17/23 09:39

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	^3+	0.020	ug/L		08/18/23 14:03	08/20/23 17:52	1
beta-BHC	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:52	1
Bis(2-ethylhexyl) phthalate	<0.59		0.59	ug/L		08/18/23 14:03	08/20/23 17:52	1
Bromacil	<0.099	^3+	0.099	ug/L		08/18/23 14:03	08/20/23 17:52	1
Butachlor	<0.049	^3+	0.049	ug/L		08/18/23 14:03	08/20/23 17:52	1
Butylbenzylphthalate	<0.49	^3+	0.49	ug/L		08/18/23 14:03	08/20/23 17:52	1
Chlorobenzilate	<0.099	^3+	0.099	ug/L		08/18/23 14:03	08/20/23 17:52	1
Chloroneb	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:52	1
Chlorothalonil (Draconil, Bravo)	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:52	1
Chlorpyrifos	<0.049		0.049	ug/L		08/18/23 14:03	08/20/23 17:52	1
Chrysene	<0.020		0.020	ug/L		08/18/23 14:03	08/20/23 17:52	1
delta-BHC	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:52	1
Di(2-ethylhexyl)adipate	<0.59	^3+ *+	0.59	ug/L		08/18/23 14:03	08/20/23 17:52	1
Dibenz(a,h)anthracene	<0.049		0.049	ug/L		08/18/23 14:03	08/20/23 17:52	1
Diclorvos (DDVP)	<0.049		0.049	ug/L		08/18/23 14:03	08/20/23 17:52	1
Dieldrin	<0.20		0.20	ug/L		08/18/23 14:03	08/20/23 17:52	1
Diethylphthalate	<0.49		0.49	ug/L		08/18/23 14:03	08/20/23 17:52	1
Dimethylphthalate	<0.49		0.49	ug/L		08/18/23 14:03	08/20/23 17:52	1
Di-n-butyl phthalate	<0.99		0.99	ug/L		08/18/23 14:03	08/20/23 17:52	1
Di-n-octyl phthalate	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:52	1
Endosulfan I (Alpha)	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:52	1
Endosulfan II (Beta)	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:52	1
Endosulfan sulfate	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:52	1
Endrin	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:52	1
Endrin aldehyde	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:52	1
EPTC	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:52	1
Fluoranthene	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:52	1
Fluorene	<0.049		0.049	ug/L		08/18/23 14:03	08/20/23 17:52	1
gamma-Chlordane	<0.049		0.049	ug/L		08/18/23 14:03	08/20/23 17:52	1
Heptachlor	<0.040		0.040	ug/L		08/18/23 14:03	08/20/23 17:52	1
Heptachlor epoxide (isomer B)	<0.049		0.049	ug/L		08/18/23 14:03	08/20/23 17:52	1
Hexachlorobenzene	<0.049		0.049	ug/L		08/18/23 14:03	08/20/23 17:52	1
Hexachlorocyclopentadiene	<0.049		0.049	ug/L		08/18/23 14:03	08/20/23 17:52	1
Indeno[1,2,3-cd]pyrene	<0.049		0.049	ug/L		08/18/23 14:03	08/20/23 17:52	1
Isophorone	<0.49		0.49	ug/L		08/18/23 14:03	08/20/23 17:52	1
Lindane	<0.040		0.040	ug/L		08/18/23 14:03	08/20/23 17:52	1
Malathion	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:52	1
Methoxychlor	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:52	1
Metolachlor	<0.049		0.049	ug/L		08/18/23 14:03	08/20/23 17:52	1
Molinate	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:52	1
Naphthalene	<0.30		0.30	ug/L		08/18/23 14:03	08/20/23 17:52	1
Parathion	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:52	1
Pendimethalin (Penoxaline)	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:52	1
Phenanthrene	<0.040		0.040	ug/L		08/18/23 14:03	08/20/23 17:52	1
Propachlor	<0.049		0.049	ug/L		08/18/23 14:03	08/20/23 17:52	1
Pyrene	<0.049		0.049	ug/L		08/18/23 14:03	08/20/23 17:52	1
Simazine	<0.049		0.049	ug/L		08/18/23 14:03	08/20/23 17:52	1
Terbacil	<0.099	^3+	0.099	ug/L		08/18/23 14:03	08/20/23 17:52	1
Terbutylazine	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:52	1

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# Client Sample Results

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

Job ID: 380-59480-1

**Client Sample ID: HALAWA WELLS UNITS 1 & 2**

**Lab Sample ID: 380-59480-2**

Date Collected: 08/15/23 10:00

Matrix: Drinking Water

Date Received: 08/17/23 09:39

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		08/18/23 14:03	08/20/23 17:52	1
Total Permethrin (mixed isomers)	<0.20		0.20	ug/L		08/18/23 14:03	08/20/23 17:52	1
trans-Nonachlor	<0.049		0.049	ug/L		08/18/23 14:03	08/20/23 17:52	1
Trifluralin	<0.099		0.099	ug/L		08/18/23 14:03	08/20/23 17:52	1

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Tentatively Identified Compound	None		ug/L			N/A	08/18/23 14:03	08/20/23 17:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	102		70 - 130	08/18/23 14:03	08/20/23 17:52	1
Perylene-d12	98		70 - 130	08/18/23 14:03	08/20/23 17:52	1
Triphenylphosphate	117		70 - 130	08/18/23 14:03	08/20/23 17:52	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosfluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:01	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:01	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:01	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:01	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:01	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:01	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:01	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:01	1
<b>Perfluorohexanesulfonic acid (PFHxS)</b>	<b>2.2</b>		2.0	ng/L		08/30/23 14:48	09/01/23 20:01	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:01	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:01	1
<b>Perfluorooctanesulfonic acid (PFOS)</b>	<b>2.0</b>		2.0	ng/L		08/30/23 14:48	09/01/23 20:01	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:01	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:01	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:01	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:01	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:01	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:01	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:01	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:01	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:01	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:01	1
<b>Perfluoropentanoic acid (PFPeA)</b>	<b>2.5</b>		2.0	ng/L		08/30/23 14:48	09/01/23 20:01	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:01	1

Eurofins Eaton Analytical Pomona

# Client Sample Results

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

Job ID: 380-59480-1

**Client Sample ID: HALAWA WELLS UNITS 1 & 2**

**Lab Sample ID: 380-59480-2**

Date Collected: 08/15/23 10:00

Matrix: Drinking Water

Date Received: 08/17/23 09:39

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
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:01	1
<b>Isotope Dilution</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>			<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
13C3 HFPO-DA	110		50 - 200			08/30/23 14:48	09/01/23 20:01	1
13C6 PFDA	106		50 - 200			08/30/23 14:48	09/01/23 20:01	1
13C5 PFHxA	111		50 - 200			08/30/23 14:48	09/01/23 20:01	1
13C4 PFHpA	110		50 - 200			08/30/23 14:48	09/01/23 20:01	1
13C8 PFOA	112		50 - 200			08/30/23 14:48	09/01/23 20:01	1
13C9 PFNA	110		50 - 200			08/30/23 14:48	09/01/23 20:01	1
13C7 PFUnA	107		50 - 200			08/30/23 14:48	09/01/23 20:01	1
13C2 PFDoA	108		50 - 200			08/30/23 14:48	09/01/23 20:01	1
13C4 PFBA	106		50 - 200			08/30/23 14:48	09/01/23 20:01	1
13C5 PFPeA	106		50 - 200			08/30/23 14:48	09/01/23 20:01	1
13C3 PFBS	100		50 - 200			08/30/23 14:48	09/01/23 20:01	1
13C3 PFHxS	101		50 - 200			08/30/23 14:48	09/01/23 20:01	1
13C8 PFOS	104		50 - 200			08/30/23 14:48	09/01/23 20:01	1
13C2-4:2-FTS	113		50 - 200			08/30/23 14:48	09/01/23 20:01	1
13C2-6:2-FTS	107		50 - 200			08/30/23 14:48	09/01/23 20:01	1
13C2-8:2-FTS	104		50 - 200			08/30/23 14:48	09/01/23 20:01	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		08/21/23 06:13	08/23/23 05:27	1
<b>Perfluorooctanesulfonic acid (PFOS)</b>	<b>2.3</b>		2.0	ng/L		08/21/23 06:13	08/23/23 05:27	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:27	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:27	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:27	1
<b>Perfluorohexanoic acid (PFHxA)</b>	<b>2.2</b>		2.0	ng/L		08/21/23 06:13	08/23/23 05:27	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:27	1
<b>Perfluorooctanoic acid (PFOA)</b>	<b>2.0</b>		2.0	ng/L		08/21/23 06:13	08/23/23 05:27	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:27	1
<b>Perfluorohexanesulfonic acid (PFHxS)</b>	<b>2.7</b>		2.0	ng/L		08/21/23 06:13	08/23/23 05:27	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:27	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:27	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:27	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:27	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:27	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:27	1
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:27	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:27	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	84		70 - 130			08/21/23 06:13	08/23/23 05:27	1
13C2 PFHxA	110		70 - 130			08/21/23 06:13	08/23/23 05:27	1

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# Client Sample Results

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

Job ID: 380-59480-1

**Client Sample ID: HALAWA WELLS UNITS 1 & 2**

**Lab Sample ID: 380-59480-2**

Date Collected: 08/15/23 10:00

Matrix: Drinking Water

Date Received: 08/17/23 09:39

PWSID Number: HI0000331

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFDA	105		70 - 130	08/21/23 06:13	08/23/23 05:27	1
13C3-GenX	96		70 - 130	08/21/23 06:13	08/23/23 05:27	1

**Client Sample ID: FB MOANALUA WELLS**

**Lab Sample ID: 380-59480-5**

Date Collected: 08/15/23 11:00

Matrix: Water

Date Received: 08/17/23 09:39

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafuoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:11	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:11	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:11	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:11	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:11	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:11	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:11	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:11	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:11	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:11	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:11	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:11	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:11	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:11	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:11	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:11	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:11	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:11	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:11	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:11	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:11	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:11	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:11	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:11	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:11	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac		
13C3 HFPO-DA	86		50 - 200	08/30/23 14:48	09/01/23 20:11	1		
13C6 PFDA	99		50 - 200	08/30/23 14:48	09/01/23 20:11	1		
13C5 PFHxA	102		50 - 200	08/30/23 14:48	09/01/23 20:11	1		
13C4 PFHpA	97		50 - 200	08/30/23 14:48	09/01/23 20:11	1		

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# Client Sample Results

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

Job ID: 380-59480-1

**Client Sample ID: FB MOANALUA WELLS**

**Lab Sample ID: 380-59480-5**

Date Collected: 08/15/23 11:00

Matrix: Water

Date Received: 08/17/23 09:39

PWSID Number: HI0000331

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOA	102		50 - 200	08/30/23 14:48	09/01/23 20:11	1
13C9 PFNA	102		50 - 200	08/30/23 14:48	09/01/23 20:11	1
13C7 PFUnA	101		50 - 200	08/30/23 14:48	09/01/23 20:11	1
13C2 PFDoA	99		50 - 200	08/30/23 14:48	09/01/23 20:11	1
13C4 PFBA	94		50 - 200	08/30/23 14:48	09/01/23 20:11	1
13C5 PFPeA	94		50 - 200	08/30/23 14:48	09/01/23 20:11	1
13C3 PFBS	105		50 - 200	08/30/23 14:48	09/01/23 20:11	1
13C3 PFHxS	101		50 - 200	08/30/23 14:48	09/01/23 20:11	1
13C8 PFOS	105		50 - 200	08/30/23 14:48	09/01/23 20:11	1
13C2-4:2-FTS	114		50 - 200	08/30/23 14:48	09/01/23 20:11	1
13C2-6:2-FTS	113		50 - 200	08/30/23 14:48	09/01/23 20:11	1
13C2-8:2-FTS	103		50 - 200	08/30/23 14:48	09/01/23 20:11	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		08/21/23 06:13	08/23/23 05:36	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:36	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:36	1
N-methylperfluorooctanesulfonamide acetic acid (NMeFOSAA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:36	1
N-ethylperfluorooctanesulfonamide acetic acid (NEtFOSAA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:36	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:36	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:36	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:36	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:36	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:36	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:36	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:36	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:36	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:36	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:36	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:36	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:36	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	94		70 - 130	08/21/23 06:13	08/23/23 05:36	1
13C2 PFHxA	109		70 - 130	08/21/23 06:13	08/23/23 05:36	1
13C2 PFDA	108		70 - 130	08/21/23 06:13	08/23/23 05:36	1
13C3-GenX	106		70 - 130	08/21/23 06:13	08/23/23 05:36	1

# Client Sample Results

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

Job ID: 380-59480-1

**Client Sample ID: FB HALAWA WELLS UNITS 1 & 2**

**Lab Sample ID: 380-59480-6**

Date Collected: 08/15/23 10:00

Matrix: Water

Date Received: 08/17/23 09:39

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:30	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:30	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:30	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:30	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:30	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:30	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:30	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:30	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:30	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:30	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:30	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:30	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:30	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:30	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:30	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:30	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:30	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:30	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:30	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:30	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:30	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:30	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:30	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:30	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		08/30/23 14:48	09/01/23 20:30	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	85		50 - 200	08/30/23 14:48	09/01/23 20:30	1
13C6 PFDA	99		50 - 200	08/30/23 14:48	09/01/23 20:30	1
13C5 PFHxA	103		50 - 200	08/30/23 14:48	09/01/23 20:30	1
13C4 PFHpA	99		50 - 200	08/30/23 14:48	09/01/23 20:30	1
13C8 PFOA	99		50 - 200	08/30/23 14:48	09/01/23 20:30	1
13C9 PFNA	100		50 - 200	08/30/23 14:48	09/01/23 20:30	1
13C7 PFUnA	100		50 - 200	08/30/23 14:48	09/01/23 20:30	1
13C2 PFDoA	100		50 - 200	08/30/23 14:48	09/01/23 20:30	1
13C4 PFBA	97		50 - 200	08/30/23 14:48	09/01/23 20:30	1
13C5 PFPeA	94		50 - 200	08/30/23 14:48	09/01/23 20:30	1
13C3 PFBS	106		50 - 200	08/30/23 14:48	09/01/23 20:30	1
13C3 PFHxS	98		50 - 200	08/30/23 14:48	09/01/23 20:30	1
13C8 PFOS	106		50 - 200	08/30/23 14:48	09/01/23 20:30	1

Eurofins Eaton Analytical Pomona



# Client Sample Results

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

Job ID: 380-59480-1

**Client Sample ID: FB HALAWA WELLS UNITS 1 & 2**

**Lab Sample ID: 380-59480-6**

**Date Collected: 08/15/23 10:00**

**Matrix: Water**

**Date Received: 08/17/23 09:39**

**PWSID Number: HI0000331**

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

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C2-4:2-FTS	115		50 - 200	08/30/23 14:48	09/01/23 20:30	1
13C2-6:2-FTS	107		50 - 200	08/30/23 14:48	09/01/23 20:30	1
13C2-8:2-FTS	101		50 - 200	08/30/23 14:48	09/01/23 20:30	1

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

<i>Analyte</i>	<i>Result</i>	<i>Qualifier</i>	<i>RL</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:46	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:46	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:46	1
N-methylperfluorooctanesulfonamideacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:46	1
N-ethylperfluorooctanesulfonamideacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:46	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:46	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:46	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:46	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:46	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:46	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:46	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:46	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:46	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:46	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:46	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:46	1
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:46	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 05:46	1

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
d5-NEtFOSAA	87		70 - 130	08/21/23 06:13	08/23/23 05:46	1
13C2 PFHxA	103		70 - 130	08/21/23 06:13	08/23/23 05:46	1
13C2 PFDA	103		70 - 130	08/21/23 06:13	08/23/23 05:46	1
13C3-GenX	101		70 - 130	08/21/23 06:13	08/23/23 05:46	1

# Action Limit Summary

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

Job ID: 380-59480-1

**Client Sample ID: MOANALUA WELLS**

**Lab Sample ID: 380-59480-1**

**PWSID Number: HI0000331**

## Compliance Check

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

Analyte	Result	Qualifier	Unit	EPAMCL		RL	Method	Prep Type
				Limit				
Alachlor	<0.049		ug/L	2		0.049	525.2	Total/NA
Atrazine	<0.049		ug/L	3		0.049	525.2	Total/NA
Benzo[a]pyrene	<0.020	^3+	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	^3+ **	ug/L	400		0.59	525.2	Total/NA
Endrin	<0.099		ug/L	2		0.099	525.2	Total/NA
Heptachlor	<0.040		ug/L	0.4		0.040	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	<0.040		ug/L	0.2		0.040	525.2	Total/NA
Methoxychlor	<0.099		ug/L	40		0.099	525.2	Total/NA
Simazine	<0.049		ug/L	4		0.049	525.2	Total/NA

**Client Sample ID: HALAWA WELLS UNITS 1 & 2**

**Lab Sample ID: 380-59480-2**

**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	^3+	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	^3+ **	ug/L	400		0.59	525.2	Total/NA
Endrin	<0.099		ug/L	2		0.099	525.2	Total/NA
Heptachlor	<0.040		ug/L	0.4		0.040	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	<0.040		ug/L	0.2		0.040	525.2	Total/NA
Methoxychlor	<0.099		ug/L	40		0.099	525.2	Total/NA
Simazine	<0.049		ug/L	4		0.049	525.2	Total/NA

# Surrogate Summary

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

Job ID: 380-59480-1

## 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)
380-59480-1	MOANALUA WELLS	99	96	114
380-59480-2	HALAWA WELLS UNITS 1 & 2	102	98	117

**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)
380-59356-K-1-A MS	Matrix Spike	104	99	116
380-59367-K-1-A DU	Duplicate	90	96	121
LCS 380-52290/23-A	Lab Control Sample	102	98	107
LCS 380-52290/24-A	Lab Control Sample Dup	100	97	109
MB 380-52290/21-A	Method Blank	106	85	105
MRL 380-52290/22-A	Lab Control Sample	99	89	111

**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)
380-59480-1	MOANALUA WELLS	85	120	103	105
380-59480-2	HALAWA WELLS UNITS 1 & 2	84	110	105	96

**Surrogate Legend**  
 d5NEFOS = d5-NEtFOSAA  
 PFHxA = 13C2 PFHxA  
 PFDA = 13C2 PFDA  
 GenX = 13C3-GenX

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		d5NEFOS (70-130)	PFHxA (70-130)	PFDA (70-130)	GenX (70-130)
380-59399-B-1-A MS	Matrix Spike	79	109	97	100
380-59399-C-1-A MSD	Matrix Spike Duplicate	78	111	93	95
380-59480-5	FB MOANALUA WELLS	94	109	108	106
380-59480-6	FB HALAWA WELLS UNITS 1 & 2	87	103	103	101
LCS 380-52564/23-A	Lab Control Sample	90	102	101	94

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# Surrogate Summary

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

Job ID: 380-59480-1

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

**Matrix: Water**

**Prep Type: Total/NA**

## Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	d5NEFOS (70-130)	PFHxA (70-130)	PFDA (70-130)	GenX (70-130)
LCSD 380-52564/24-A	Lab Control Sample Dup	83	117	96	106
MB 380-52564/21-A	Method Blank	94	106	116	104
MRL 380-52564/22-A	Lab Control Sample	84	100	102	96

### 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: 380-59480-1

## 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)
380-59480-1	MOANALUA WELLS	92	97	102	98	99	101	101	103
380-59480-2	HALAWA WELLS UNITS 1 & 2	110	106	111	110	112	110	107	108

### 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)
380-59480-1	MOANALUA WELLS	91	92	104	101	107	118	110	101
380-59480-2	HALAWA WELLS UNITS 1 & 2	106	106	100	101	104	113	107	104

#### Surrogate Legend

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

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

Matrix: Water

Prep Type: Total/NA

### Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HFPODA (50-200)	C6PFDA (50-200)	13C5PHA (50-200)	C4PFHA (50-200)	C8PFOA (50-200)	C9PFNA (50-200)	13C7PUA (50-200)	PFDoA (50-200)
380-59313-O-1-A MS	Matrix Spike	59	79	59	60	67	77	85	87
380-59313-P-1-A MSD	Matrix Spike Duplicate	58	81	64	65	73	78	83	85
380-59480-5	FB MOANALUA WELLS	86	99	102	97	102	102	101	99
380-59480-6	FB HALAWA WELLS UNITS 1 & 2	85	99	103	99	99	100	100	100
LCS 380-53809/23-A	Lab Control Sample	96	96	99	93	96	98	95	98
LCSD 380-53809/24-A	Lab Control Sample Dup	93	97	99	93	95	99	95	99
MBL 380-53809/21-A	Method Blank	82	89	95	94	92	91	89	88
MRL 380-53809/22-A	Lab Control Sample	83	89	100	96	94	90	90	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)
380-59313-O-1-A MS	Matrix Spike	59	59	94	96	100	105	109	104
380-59313-P-1-A MSD	Matrix Spike Duplicate	65	63	93	90	97	98	113	95
380-59480-5	FB MOANALUA WELLS	94	94	105	101	105	114	113	103
380-59480-6	FB HALAWA WELLS UNITS 1 & 2	97	94	106	98	106	115	107	101
LCS 380-53809/23-A	Lab Control Sample	94	97	92	89	94	95	95	91

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# Isotope Dilution Summary

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

Job ID: 380-59480-1

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

Matrix: Water

Prep Type: Total/NA

### Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFBA (50-200)	PFPeA (50-200)	C3PFBS (50-200)	C3PFHS (50-200)	C8PFOS (50-200)	42FTS (50-200)	62FTS (50-200)	82FTS (50-200)
LCSD 380-53809/24-A	Lab Control Sample Dup	89	88	91	88	93	90	92	89
MBL 380-53809/21-A	Method Blank	91	90	88	90	93	104	95	95
MRL 380-53809/22-A	Lab Control Sample	94	93	94	91	93	108	97	90

#### 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: 380-59480-1

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

**Lab Sample ID: MB 380-52290/21-A**  
**Matrix: Water**  
**Analysis Batch: 52496**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 52290**

Analyte	MB	MB	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
1-Methylnaphthalene	<0.098		0.098	ug/L		08/18/23 12:42	08/20/23 11:17	1
2,4'-DDD	<0.098		0.098	ug/L		08/18/23 12:42	08/20/23 11:17	1
2,4'-DDE	<0.098		0.098	ug/L		08/18/23 12:42	08/20/23 11:17	1
2,4'-DDT	<0.098		0.098	ug/L		08/18/23 12:42	08/20/23 11:17	1
2,4-Dinitrotoluene	<0.098		0.098	ug/L		08/18/23 12:42	08/20/23 11:17	1
2,6-Dinitrotoluene	<0.098		0.098	ug/L		08/18/23 12:42	08/20/23 11:17	1
2-Methylnaphthalene	<0.098		0.098	ug/L		08/18/23 12:42	08/20/23 11:17	1
4,4'-DDD	<0.098		0.098	ug/L		08/18/23 12:42	08/20/23 11:17	1
4,4'-DDE	<0.098		0.098	ug/L		08/18/23 12:42	08/20/23 11:17	1
4,4'-DDT	<0.098		0.098	ug/L		08/18/23 12:42	08/20/23 11:17	1
Acenaphthene	<0.098		0.098	ug/L		08/18/23 12:42	08/20/23 11:17	1
Acenaphthylene	<0.098		0.098	ug/L		08/18/23 12:42	08/20/23 11:17	1
Acetochlor	<0.098		0.098	ug/L		08/18/23 12:42	08/20/23 11:17	1
Alachlor	<0.049		0.049	ug/L		08/18/23 12:42	08/20/23 11:17	1
alpha-BHC	<0.098		0.098	ug/L		08/18/23 12:42	08/20/23 11:17	1
alpha-Chlordane	<0.049		0.049	ug/L		08/18/23 12:42	08/20/23 11:17	1
Anthracene	<0.020		0.020	ug/L		08/18/23 12:42	08/20/23 11:17	1
Atrazine	<0.049		0.049	ug/L		08/18/23 12:42	08/20/23 11:17	1
Benz(a)anthracene	<0.049		0.049	ug/L		08/18/23 12:42	08/20/23 11:17	1
Benzo[a]pyrene	<0.020		0.020	ug/L		08/18/23 12:42	08/20/23 11:17	1
Benzo[b]fluoranthene	<0.020		0.020	ug/L		08/18/23 12:42	08/20/23 11:17	1
Benzo[g,h,i]perylene	<0.049		0.049	ug/L		08/18/23 12:42	08/20/23 11:17	1
Benzo[k]fluoranthene	<0.020		0.020	ug/L		08/18/23 12:42	08/20/23 11:17	1
beta-BHC	<0.098		0.098	ug/L		08/18/23 12:42	08/20/23 11:17	1
Bis(2-ethylhexyl) phthalate	<0.59		0.59	ug/L		08/18/23 12:42	08/20/23 11:17	1
Bromacil	<0.098		0.098	ug/L		08/18/23 12:42	08/20/23 11:17	1
Butachlor	<0.049		0.049	ug/L		08/18/23 12:42	08/20/23 11:17	1
Butylbenzylphthalate	<0.49		0.49	ug/L		08/18/23 12:42	08/20/23 11:17	1
Chlorobenzilate	<0.098		0.098	ug/L		08/18/23 12:42	08/20/23 11:17	1
Chloroneb	<0.098		0.098	ug/L		08/18/23 12:42	08/20/23 11:17	1
Chlorothalonil (Draconil, Bravo)	<0.098		0.098	ug/L		08/18/23 12:42	08/20/23 11:17	1
Chlorpyrifos	<0.049		0.049	ug/L		08/18/23 12:42	08/20/23 11:17	1
Chrysene	<0.020		0.020	ug/L		08/18/23 12:42	08/20/23 11:17	1
delta-BHC	<0.098		0.098	ug/L		08/18/23 12:42	08/20/23 11:17	1
Di(2-ethylhexyl)adipate	<0.59		0.59	ug/L		08/18/23 12:42	08/20/23 11:17	1
Dibenz(a,h)anthracene	<0.049		0.049	ug/L		08/18/23 12:42	08/20/23 11:17	1
Diclorvos (DDVP)	<0.049		0.049	ug/L		08/18/23 12:42	08/20/23 11:17	1
Dieldrin	<0.20		0.20	ug/L		08/18/23 12:42	08/20/23 11:17	1
Diethylphthalate	<0.49		0.49	ug/L		08/18/23 12:42	08/20/23 11:17	1
Dimethylphthalate	<0.49		0.49	ug/L		08/18/23 12:42	08/20/23 11:17	1
Di-n-butyl phthalate	<0.98		0.98	ug/L		08/18/23 12:42	08/20/23 11:17	1
Di-n-octyl phthalate	<0.098		0.098	ug/L		08/18/23 12:42	08/20/23 11:17	1
Endosulfan I (Alpha)	<0.098		0.098	ug/L		08/18/23 12:42	08/20/23 11:17	1
Endosulfan II (Beta)	<0.098		0.098	ug/L		08/18/23 12:42	08/20/23 11:17	1
Endosulfan sulfate	<0.098		0.098	ug/L		08/18/23 12:42	08/20/23 11:17	1
Endrin	<0.098		0.098	ug/L		08/18/23 12:42	08/20/23 11:17	1
Endrin aldehyde	<0.098		0.098	ug/L		08/18/23 12:42	08/20/23 11:17	1
EPTC	<0.098		0.098	ug/L		08/18/23 12:42	08/20/23 11:17	1

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# QC Sample Results

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

Job ID: 380-59480-1

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

**Lab Sample ID: MB 380-52290/21-A**  
**Matrix: Water**  
**Analysis Batch: 52496**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 52290**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoranthene	<0.098		0.098	ug/L		08/18/23 12:42	08/20/23 11:17	1
Fluorene	<0.049		0.049	ug/L		08/18/23 12:42	08/20/23 11:17	1
gamma-Chlordane	<0.049		0.049	ug/L		08/18/23 12:42	08/20/23 11:17	1
Heptachlor	<0.039		0.039	ug/L		08/18/23 12:42	08/20/23 11:17	1
Heptachlor epoxide (isomer B)	<0.049		0.049	ug/L		08/18/23 12:42	08/20/23 11:17	1
Hexachlorobenzene	<0.049		0.049	ug/L		08/18/23 12:42	08/20/23 11:17	1
Hexachlorocyclopentadiene	<0.049		0.049	ug/L		08/18/23 12:42	08/20/23 11:17	1
Indeno[1,2,3-cd]pyrene	<0.049		0.049	ug/L		08/18/23 12:42	08/20/23 11:17	1
Isophorone	<0.49		0.49	ug/L		08/18/23 12:42	08/20/23 11:17	1
Lindane	<0.039		0.039	ug/L		08/18/23 12:42	08/20/23 11:17	1
Malathion	<0.098		0.098	ug/L		08/18/23 12:42	08/20/23 11:17	1
Methoxychlor	<0.098		0.098	ug/L		08/18/23 12:42	08/20/23 11:17	1
Metolachlor	<0.049		0.049	ug/L		08/18/23 12:42	08/20/23 11:17	1
Molinate	<0.098		0.098	ug/L		08/18/23 12:42	08/20/23 11:17	1
Naphthalene	<0.29		0.29	ug/L		08/18/23 12:42	08/20/23 11:17	1
Parathion	<0.098		0.098	ug/L		08/18/23 12:42	08/20/23 11:17	1
Pendimethalin (Penoxaline)	<0.098		0.098	ug/L		08/18/23 12:42	08/20/23 11:17	1
Phenanthrene	<0.039		0.039	ug/L		08/18/23 12:42	08/20/23 11:17	1
Propachlor	<0.049		0.049	ug/L		08/18/23 12:42	08/20/23 11:17	1
Pyrene	<0.049		0.049	ug/L		08/18/23 12:42	08/20/23 11:17	1
Simazine	<0.049		0.049	ug/L		08/18/23 12:42	08/20/23 11:17	1
Terbacil	<0.098		0.098	ug/L		08/18/23 12:42	08/20/23 11:17	1
Terbutylazine	<0.098		0.098	ug/L		08/18/23 12:42	08/20/23 11:17	1
Thiobencarb	<0.20		0.20	ug/L		08/18/23 12:42	08/20/23 11:17	1
Total Permethrin (mixed isomers)	<0.20		0.20	ug/L		08/18/23 12:42	08/20/23 11:17	1
trans-Nonachlor	<0.049		0.049	ug/L		08/18/23 12:42	08/20/23 11:17	1
Trifluralin	<0.098		0.098	ug/L		08/18/23 12:42	08/20/23 11:17	1

<i>Tentatively Identified Compound</i>	MB Est. Result	MB Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
2-Butenal, 3-methyl-	0.816	T J N	ug/L		2.28	107-86-8	08/18/23 12:42	08/20/23 11:17	1
Benzene, 1,2,4-trimethyl-	0.557	T J N	ug/L		2.55	95-63-6	08/18/23 12:42	08/20/23 11:17	1
Decane, 2-methyl-	0.870	T J N	ug/L		2.66	6975-98-0	08/18/23 12:42	08/20/23 11:17	1
Phenol, 4-(1,1-dimethylpropyl)-	1.13	T J N	ug/L		3.92	80-46-6	08/18/23 12:42	08/20/23 11:17	1
Tetradecanoic acid	0.557	T J N	ug/L		5.92	544-63-8	08/18/23 12:42	08/20/23 11:17	1
Oxirane, hexadecyl-	0.513	T J N	ug/L		6.16	7390-81-0	08/18/23 12:42	08/20/23 11:17	1
6-Octadecenoic acid	1.52	T J N	ug/L		6.55	1000336-66-8	08/18/23 12:42	08/20/23 11:17	1
Octadecanoic acid	0.786	T J N	ug/L		6.62	57-11-4	08/18/23 12:42	08/20/23 11:17	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	106		70 - 130	08/18/23 12:42	08/20/23 11:17	1
Perylene-d12	85		70 - 130	08/18/23 12:42	08/20/23 11:17	1
Triphenylphosphate	105		70 - 130	08/18/23 12:42	08/20/23 11:17	1

Eurofins Eaton Analytical Pomona



# QC Sample Results

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

Job ID: 380-59480-1

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

**Lab Sample ID: LCS 380-52290/23-A**  
**Matrix: Water**  
**Analysis Batch: 52496**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 52290**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1-Methylnaphthalene	1.97	2.10		ug/L		107	70 - 130
2,4'-DDD	1.97	2.09		ug/L		106	70 - 130
2,4'-DDE	1.97	2.11		ug/L		107	70 - 130
2,4'-DDT	1.97	2.13		ug/L		108	70 - 130
2,4-Dinitrotoluene	1.97	2.12		ug/L		108	70 - 130
2,6-Dinitrotoluene	1.97	2.13		ug/L		108	70 - 130
2-Methylnaphthalene	1.97	2.14		ug/L		109	70 - 130
4,4'-DDD	1.97	2.24		ug/L		114	70 - 130
4,4'-DDE	1.97	2.19		ug/L		111	70 - 130
4,4'-DDT	1.97	2.15		ug/L		109	70 - 130
Acenaphthene	1.97	2.01		ug/L		102	70 - 130
Acenaphthylene	1.97	2.07		ug/L		105	70 - 130
Acetochlor	1.97	2.39		ug/L		122	70 - 130
Alachlor	1.97	2.41		ug/L		122	70 - 130
alpha-BHC	1.97	2.16		ug/L		110	70 - 130
alpha-Chlordane	1.97	2.16		ug/L		110	70 - 130
Anthracene	1.97	2.13		ug/L		108	70 - 130
Atrazine	1.97	2.43		ug/L		123	70 - 130
Benz(a)anthracene	1.97	2.26		ug/L		115	70 - 130
Benzo[a]pyrene	1.97	2.10		ug/L		107	70 - 130
Benzo[b]fluoranthene	1.97	2.26		ug/L		115	70 - 130
Benzo[g,h,i]perylene	1.97	2.22		ug/L		113	70 - 130
Benzo[k]fluoranthene	1.97	2.07		ug/L		105	70 - 130
beta-BHC	1.97	2.08		ug/L		105	70 - 130
Bis(2-ethylhexyl) phthalate	1.97	2.08		ug/L		106	70 - 130
Bromacil	1.97	2.26		ug/L		115	70 - 130
Butachlor	1.97	2.36		ug/L		120	70 - 130
Butylbenzylphthalate	1.97	2.47		ug/L		125	70 - 130
Chlorobenzilate	1.97	2.43		ug/L		123	70 - 130
Chloroneb	1.97	2.15		ug/L		109	70 - 130
Chlorothalonil (Draconil, Bravo)	1.97	2.07		ug/L		105	70 - 130
Chlorpyrifos	1.97	2.33		ug/L		118	70 - 130
Chrysene	1.97	2.14		ug/L		109	70 - 130
delta-BHC	1.97	2.09		ug/L		106	70 - 130
Di(2-ethylhexyl)adipate	1.97	2.62	*+	ug/L		133	70 - 130
Dibenz(a,h)anthracene	1.97	2.25		ug/L		114	70 - 130
Diclorvos (DDVP)	1.97	2.35		ug/L		120	70 - 130
Dieldrin	1.97	2.11		ug/L		107	70 - 130
Diethylphthalate	1.97	2.25		ug/L		114	70 - 130
Dimethylphthalate	1.97	2.26		ug/L		115	70 - 130
Di-n-butyl phthalate	3.94	4.41		ug/L		112	70 - 130
Di-n-octyl phthalate	1.97	2.03		ug/L		103	70 - 130
Endosulfan I (Alpha)	1.97	2.07		ug/L		105	70 - 130
Endosulfan II (Beta)	1.97	2.15		ug/L		109	70 - 130
Endosulfan sulfate	1.97	2.22		ug/L		113	70 - 130
Endrin	1.97	2.41		ug/L		122	70 - 130
Endrin aldehyde	1.97	2.04		ug/L		104	70 - 130
EPTC	1.97	2.25		ug/L		114	70 - 130

# QC Sample Results

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

Job ID: 380-59480-1

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

**Lab Sample ID: LCS 380-52290/23-A**  
**Matrix: Water**  
**Analysis Batch: 52496**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 52290**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Fluoranthene	1.97	2.16		ug/L		110	70 - 130
Fluorene	1.97	2.21		ug/L		112	70 - 130
gamma-Chlordane	1.97	2.20		ug/L		112	70 - 130
Heptachlor	1.97	2.37		ug/L		120	70 - 130
Heptachlor epoxide (isomer B)	1.97	2.36		ug/L		120	70 - 130
Hexachlorobenzene	1.97	2.14		ug/L		109	70 - 130
Hexachlorocyclopentadiene	1.97	2.09		ug/L		106	70 - 130
Indeno[1,2,3-cd]pyrene	1.97	2.24		ug/L		114	70 - 130
Isophorone	1.97	2.14		ug/L		109	70 - 130
Lindane	1.97	2.20		ug/L		112	70 - 130
Malathion	1.97	2.26		ug/L		115	70 - 130
Methoxychlor	1.97	2.33		ug/L		118	70 - 130
Metolachlor	1.97	2.52		ug/L		128	70 - 130
Molinate	1.97	2.31		ug/L		117	70 - 130
Naphthalene	1.97	1.85		ug/L		94	70 - 130
Parathion	1.97	2.29		ug/L		116	70 - 130
Pendimethalin (Penoxaline)	1.97	2.23		ug/L		113	70 - 130
Phenanthrene	1.97	2.02		ug/L		102	70 - 130
Propachlor	1.97	2.40		ug/L		122	70 - 130
Pyrene	1.97	2.14		ug/L		109	70 - 130
Simazine	1.97	2.10		ug/L		107	70 - 130
Terbacil	1.97	2.35		ug/L		120	70 - 130
Terbutylazine	1.97	2.33		ug/L		119	70 - 130
Thiobencarb	1.97	2.27		ug/L		116	70 - 130
trans-Nonachlor	1.97	2.18		ug/L		111	70 - 130
Trifluralin	1.97	2.20		ug/L		112	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Nitro-m-xylene	102		70 - 130
Perylene-d12	98		70 - 130
Triphenylphosphate	107		70 - 130

**Lab Sample ID: LCSD 380-52290/24-A**  
**Matrix: Water**  
**Analysis Batch: 52496**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 52290**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1-Methylnaphthalene	1.97	2.09		ug/L		107	70 - 130	0	20
2,4'-DDD	1.97	2.15		ug/L		110	70 - 130	3	20
2,4'-DDE	1.97	2.09		ug/L		106	70 - 130	1	20
2,4'-DDT	1.97	2.15		ug/L		109	70 - 130	1	20
2,4-Dinitrotoluene	1.97	2.11		ug/L		107	70 - 130	1	20
2,6-Dinitrotoluene	1.97	2.10		ug/L		107	70 - 130	1	20
2-Methylnaphthalene	1.97	2.14		ug/L		109	70 - 130	0	20
4,4'-DDD	1.97	2.29		ug/L		117	70 - 130	2	20
4,4'-DDE	1.97	2.17		ug/L		111	70 - 130	1	20
4,4'-DDT	1.97	2.15		ug/L		110	70 - 130	0	20
Acenaphthene	1.97	2.01		ug/L		102	70 - 130	0	20

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# QC Sample Results

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

Job ID: 380-59480-1

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

**Lab Sample ID: LCSD 380-52290/24-A**  
**Matrix: Water**  
**Analysis Batch: 52496**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 52290**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	RPD Limit
							Limits	RPD		
Acenaphthylene	1.97	2.05		ug/L		104	70 - 130	1	20	
Acetochlor	1.97	2.40		ug/L		122	70 - 130	0	20	
Alachlor	1.97	2.40		ug/L		122	70 - 130	0	20	
alpha-BHC	1.97	2.13		ug/L		108	70 - 130	2	20	
alpha-Chlordane	1.97	2.15		ug/L		109	70 - 130	1	20	
Anthracene	1.97	2.13		ug/L		108	70 - 130	0	20	
Atrazine	1.97	2.47		ug/L		126	70 - 130	2	20	
Benz(a)anthracene	1.97	2.29		ug/L		117	70 - 130	1	20	
Benzo[a]pyrene	1.97	2.07		ug/L		106	70 - 130	1	20	
Benzo[b]fluoranthene	1.97	2.22		ug/L		113	70 - 130	2	20	
Benzo[g,h,i]perylene	1.97	2.16		ug/L		110	70 - 130	3	20	
Benzo[k]fluoranthene	1.97	2.10		ug/L		107	70 - 130	2	20	
beta-BHC	1.97	2.14		ug/L		109	70 - 130	3	20	
Bis(2-ethylhexyl) phthalate	1.97	2.09		ug/L		106	70 - 130	1	20	
Bromacil	1.97	2.29		ug/L		117	70 - 130	1	20	
Butachlor	1.97	2.37		ug/L		121	70 - 130	0	20	
Butylbenzylphthalate	1.97	2.49		ug/L		127	70 - 130	1	20	
Chlorobenzilate	1.97	2.48		ug/L		126	70 - 130	2	20	
Chloroneb	1.97	2.09		ug/L		106	70 - 130	3	20	
Chlorothalonil (Draconil, Bravo)	1.97	2.10		ug/L		107	70 - 130	1	20	
Chlorpyrifos	1.97	2.32		ug/L		118	70 - 130	0	20	
Chrysene	1.97	2.16		ug/L		110	70 - 130	1	20	
delta-BHC	1.97	2.10		ug/L		107	70 - 130	0	20	
Di(2-ethylhexyl)adipate	1.97	2.59	*+	ug/L		132	70 - 130	1	20	
Dibenz(a,h)anthracene	1.97	2.14		ug/L		109	70 - 130	5	20	
Diclorvos (DDVP)	1.97	2.30		ug/L		117	70 - 130	3	20	
Dieldrin	1.97	2.07		ug/L		105	70 - 130	2	20	
Diethylphthalate	1.97	2.22		ug/L		113	70 - 130	1	20	
Dimethylphthalate	1.97	2.24		ug/L		114	70 - 130	1	20	
Di-n-butyl phthalate	3.93	4.40		ug/L		112	70 - 130	0	20	
Di-n-octyl phthalate	1.97	1.88		ug/L		96	70 - 130	8	20	
Endosulfan I (Alpha)	1.97	2.06		ug/L		105	70 - 130	1	20	
Endosulfan II (Beta)	1.97	2.16		ug/L		110	70 - 130	0	20	
Endosulfan sulfate	1.97	2.24		ug/L		114	70 - 130	1	20	
Endrin	1.97	2.49		ug/L		127	70 - 130	3	20	
Endrin aldehyde	1.97	2.08		ug/L		106	70 - 130	2	20	
EPTC	1.97	2.23		ug/L		114	70 - 130	1	20	
Fluoranthene	1.97	2.20		ug/L		112	70 - 130	2	20	
Fluorene	1.97	2.20		ug/L		112	70 - 130	0	20	
gamma-Chlordane	1.97	2.18		ug/L		111	70 - 130	1	20	
Heptachlor	1.97	2.33		ug/L		119	70 - 130	2	20	
Heptachlor epoxide (isomer B)	1.97	2.35		ug/L		120	70 - 130	1	20	
Hexachlorobenzene	1.97	2.14		ug/L		109	70 - 130	0	20	
Hexachlorocyclopentadiene	1.97	2.09		ug/L		106	70 - 130	0	20	
Indeno[1,2,3-cd]pyrene	1.97	2.22		ug/L		113	70 - 130	1	20	
Isophorone	1.97	2.15		ug/L		109	70 - 130	0	20	
Lindane	1.97	2.19		ug/L		112	70 - 130	0	20	
Malathion	1.97	2.26		ug/L		115	70 - 130	0	20	
Methoxychlor	1.97	2.37		ug/L		121	70 - 130	2	20	

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-59480-1

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

**Lab Sample ID: LCSD 380-52290/24-A**  
**Matrix: Water**  
**Analysis Batch: 52496**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 52290**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Metolachlor	1.97	2.47		ug/L		126	70 - 130	2	20
Molinate	1.97	2.29		ug/L		117	70 - 130	1	20
Naphthalene	1.97	1.85		ug/L		94	70 - 130	0	20
Parathion	1.97	2.34		ug/L		119	70 - 130	2	20
Pendimethalin (Penoxaline)	1.97	2.23		ug/L		114	70 - 130	0	20
Phenanthrene	1.97	2.01		ug/L		102	70 - 130	0	20
Propachlor	1.97	2.36		ug/L		120	70 - 130	2	20
Pyrene	1.97	2.19		ug/L		111	70 - 130	2	20
Simazine	1.97	2.20		ug/L		112	70 - 130	5	20
Terbacil	1.97	2.41		ug/L		123	70 - 130	3	20
Terbutylazine	1.97	2.33		ug/L		118	70 - 130	0	20
Thiobencarb	1.97	2.34		ug/L		119	70 - 130	3	20
trans-Nonachlor	1.97	2.18		ug/L		111	70 - 130	0	20
Trifluralin	1.97	2.17		ug/L		111	70 - 130	1	20

Surrogate	LCSD %Recovery	LCSD Qualifier	LCSD Limits
2-Nitro-m-xylene	100		70 - 130
Perylene-d12	97		70 - 130
Triphenylphosphate	109		70 - 130

**Lab Sample ID: MRL 380-52290/22-A**  
**Matrix: Water**  
**Analysis Batch: 52496**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 52290**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
1-Methylnaphthalene	0.0983	0.115		ug/L		117	50 - 150
2,4'-DDD	0.0983	0.155	^3+	ug/L		157	50 - 150
2,4'-DDE	0.0983	0.117		ug/L		119	50 - 150
2,4'-DDT	0.0983	0.137		ug/L		139	50 - 150
2,4-Dinitrotoluene	0.0983	0.127		ug/L		129	50 - 150
2,6-Dinitrotoluene	0.0983	0.122		ug/L		124	50 - 150
2-Methylnaphthalene	0.0983	0.106		ug/L		107	50 - 150
4,4'-DDD	0.0983	0.115		ug/L		117	50 - 150
4,4'-DDE	0.0983	0.0958	J	ug/L		97	50 - 150
4,4'-DDT	0.0983	0.148	^3+	ug/L		151	50 - 150
Acenaphthene	0.0983	0.104		ug/L		106	50 - 150
Acenaphthylene	0.0983	0.0907	J	ug/L		92	50 - 150
Acetochlor	0.0491	0.0514	J	ug/L		105	50 - 150
Alachlor	0.0491	0.0629		ug/L		128	50 - 150
alpha-BHC	0.0983	0.106		ug/L		108	50 - 150
alpha-Chlordane	0.0246	<0.029		ug/L		110	50 - 150
Anthracene	0.0197	0.0208		ug/L		106	50 - 150
Atrazine	0.0491	0.0666		ug/L		136	50 - 150
Benz(a)anthracene	0.0491	0.0521		ug/L		106	50 - 150
Benzo[a]pyrene	0.0197	0.0318	^3+	ug/L		162	50 - 150
Benzo[b]fluoranthene	0.0197	0.0321	^3+	ug/L		163	50 - 150
Benzo[g,h,i]perylene	0.0491	0.0621		ug/L		126	50 - 150
Benzo[k]fluoranthene	0.0197	0.0335	^3+	ug/L		170	50 - 150

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-59480-1

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

**Lab Sample ID: MRL 380-52290/22-A**  
**Matrix: Water**  
**Analysis Batch: 52496**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 52290**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
beta-BHC	0.0983	0.116		ug/L		118	50 - 150
Bis(2-ethylhexyl) phthalate	0.590	0.805		ug/L		137	50 - 150
Bromacil	0.0983	0.156	^3+	ug/L		159	50 - 150
Butachlor	0.0491	0.0875	^3+	ug/L		178	50 - 150
Butylbenzylphthalate	0.147	0.224	J ^3+	ug/L		152	50 - 150
Chlorobenzilate	0.0983	0.189	^3+	ug/L		193	50 - 150
Chloroneb	0.0983	0.118		ug/L		120	50 - 150
Chlorothalonil (Draconil, Bravo)	0.0983	0.139		ug/L		141	50 - 150
Chlorpyrifos	0.0491	0.0660		ug/L		134	50 - 150
Chrysene	0.0197	0.0196	J	ug/L		100	50 - 150
delta-BHC	0.0983	0.126		ug/L		128	50 - 150
Di(2-ethylhexyl)adipate	0.295	1.39	^3+	ug/L		473	50 - 150
Dibenz(a,h)anthracene	0.0491	0.0467	J	ug/L		95	50 - 150
Diclorvos (DDVP)	0.0491	0.0565		ug/L		115	50 - 150
Dieldrin	0.0983	0.127	J	ug/L		130	50 - 150
Diethylphthalate	0.147	0.185	J	ug/L		125	50 - 150
Dimethylphthalate	0.295	0.323	J	ug/L		110	50 - 150
Di-n-butyl phthalate	0.295	0.432	J	ug/L		147	49 - 243
Di-n-octyl phthalate	0.0983	0.123		ug/L		125	50 - 150
Endosulfan I (Alpha)	0.0983	0.101		ug/L		102	50 - 150
Endosulfan II (Beta)	0.0983	0.146		ug/L		149	50 - 150
Endosulfan sulfate	0.0983	0.107		ug/L		109	50 - 150
Endrin	0.0983	0.102		ug/L		104	50 - 150
Endrin aldehyde	0.0983	0.145		ug/L		148	50 - 150
EPTC	0.0983	0.113		ug/L		115	50 - 150
Fluoranthene	0.0491	0.0583	J	ug/L		119	50 - 150
Fluorene	0.0491	0.0508		ug/L		103	50 - 150
gamma-Chlordane	0.0246	0.0272	J	ug/L		111	50 - 150
Heptachlor	0.0393	0.0512		ug/L		130	50 - 150
Heptachlor epoxide (isomer B)	0.0491	0.0592		ug/L		120	50 - 150
Hexachlorobenzene	0.0491	0.0492		ug/L		100	50 - 150
Hexachlorocyclopentadiene	0.0491	0.0386	J	ug/L		78	50 - 150
Indeno[1,2,3-cd]pyrene	0.0491	0.0655		ug/L		133	50 - 150
Isophorone	0.0983	0.107	J	ug/L		109	50 - 150
Lindane	0.0393	0.0528		ug/L		134	50 - 150
Malathion	0.0983	0.126		ug/L		128	50 - 150
Methoxychlor	0.0983	0.137		ug/L		139	50 - 150
Metolachlor	0.0491	0.0640		ug/L		130	50 - 150
Molinate	0.0983	0.117		ug/L		119	50 - 150
Naphthalene	0.0983	0.0999	J	ug/L		102	50 - 150
Parathion	0.0983	0.139		ug/L		142	50 - 150
Pendimethalin (Penoxaline)	0.0983	0.131		ug/L		133	50 - 150
Phenanthrene	0.0197	0.0236	J	ug/L		120	50 - 150
Propachlor	0.0491	0.0595		ug/L		121	50 - 150
Pyrene	0.0491	0.0566		ug/L		115	50 - 150
Simazine	0.0491	0.0657		ug/L		134	50 - 150
Terbacil	0.0983	0.162	^3+	ug/L		165	50 - 150
Terbutylazine	0.0983	0.117		ug/L		119	50 - 150
Thiobencarb	0.0983	0.133	J	ug/L		135	50 - 150

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-59480-1

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

**Lab Sample ID: MRL 380-52290/22-A**  
**Matrix: Water**  
**Analysis Batch: 52496**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 52290**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
trans-Nonachlor	0.0246	0.0270	J	ug/L		110	50 - 150
Trifluralin	0.0983	0.133		ug/L		136	50 - 150
<b>Surrogate</b>							
	MRL %Recovery	MRL Qualifier	Limits				
2-Nitro-m-xylene	99		70 - 130				
Perylene-d12	89		70 - 130				
Triphenylphosphate	111		70 - 130				

**Lab Sample ID: 380-59356-K-1-A MS**  
**Matrix: Water**  
**Analysis Batch: 52496**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 52290**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1-Methylnaphthalene	<0.098		1.94	2.08		ug/L		107	70 - 130
2,4'-DDD	<0.098	^3+	1.94	2.12		ug/L		109	70 - 130
2,4'-DDE	<0.098		1.94	2.05		ug/L		106	70 - 130
2,4'-DDT	<0.098		1.94	2.14		ug/L		110	70 - 130
2,4-Dinitrotoluene	<0.098		1.94	2.29		ug/L		118	70 - 130
2,6-Dinitrotoluene	<0.098		1.94	2.27		ug/L		117	70 - 130
2-Methylnaphthalene	<0.098		1.94	2.10		ug/L		108	70 - 130
4,4'-DDD	<0.098		1.94	2.29		ug/L		118	70 - 130
4,4'-DDE	<0.098		1.94	2.10		ug/L		109	70 - 130
4,4'-DDT	<0.098	^3+	1.94	2.19		ug/L		113	70 - 130
Acenaphthene	<0.098		1.94	1.96		ug/L		101	70 - 130
Acenaphthylene	<0.098		1.94	2.07		ug/L		107	70 - 130
Acetochlor	<0.098		1.94	2.43		ug/L		125	70 - 130
Alachlor	<0.049		1.94	2.44		ug/L		126	70 - 130
alpha-BHC	<0.098		1.94	2.14		ug/L		110	70 - 130
alpha-Chlordane	<0.049		1.94	2.15		ug/L		111	70 - 130
Anthracene	<0.020	F1	1.94	0.639	F1	ug/L		33	70 - 130
Atrazine	<0.049	F1	1.94	2.57	F1	ug/L		133	70 - 130
Benz(a)anthracene	<0.049		1.94	1.90		ug/L		98	70 - 130
Benzo[a]pyrene	<0.020	^3+ F1	1.94	1.26	F1	ug/L		65	70 - 130
Benzo[b]fluoranthene	<0.020	^3+	1.94	2.20		ug/L		114	70 - 130
Benzo[g,h,i]perylene	<0.049		1.94	2.24		ug/L		116	70 - 130
Benzo[k]fluoranthene	<0.020	^3+	1.94	2.08		ug/L		107	70 - 130
beta-BHC	<0.098		1.94	2.15		ug/L		111	70 - 130
Bis(2-ethylhexyl) phthalate	<0.59		1.94	2.20		ug/L		103	70 - 130
Bromacil	<0.098	^3+ F1	1.94	2.55	F1	ug/L		132	70 - 130
Butachlor	<0.049	^3+	1.94	2.41		ug/L		124	70 - 130
Butylbenzylphthalate	<0.49	^3+ F1	1.94	2.64	F1	ug/L		136	70 - 130
Chlorobenzilate	<0.098	^3+	1.94	2.51		ug/L		130	70 - 130
Chloroneb	<0.098		1.94	2.09		ug/L		108	70 - 130
Chlorothalonil (Draconil, Bravo)	<0.098		1.94	2.11		ug/L		109	70 - 130
Chlorpyrifos	<0.049		1.94	2.34		ug/L		121	70 - 130
Chrysene	<0.020		1.94	2.10		ug/L		108	70 - 130
delta-BHC	<0.098		1.94	2.10		ug/L		108	70 - 130
Di(2-ethylhexyl)adipate	<0.59	^3+ *+ F1	1.94	2.67	F1	ug/L		138	70 - 130

# QC Sample Results

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

Job ID: 380-59480-1

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

**Lab Sample ID: 380-59356-K-1-A MS**  
**Matrix: Water**  
**Analysis Batch: 52496**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 52290**

Analyte	Sample	Sample Qualifier	Spike Added	MS	MS Qualifier	Unit	D	%Rec	%Rec Limits
	Result			Result					
Dibenz(a,h)anthracene	<0.049		1.94	2.16		ug/L		111	70 - 130
Diclorvos (DDVP)	<0.049		1.94	2.35		ug/L		121	70 - 130
Dieldrin	<0.20		1.94	2.11		ug/L		109	70 - 130
Diethylphthalate	<0.49		1.94	2.27		ug/L		117	70 - 130
Dimethylphthalate	<0.49		1.94	2.26		ug/L		116	70 - 130
Di-n-butyl phthalate	<0.98		3.88	4.46		ug/L		112	70 - 130
Di-n-octyl phthalate	<0.098		1.94	2.08		ug/L		107	70 - 130
Endosulfan I (Alpha)	<0.098		1.94	2.03		ug/L		105	70 - 130
Endosulfan II (Beta)	<0.098		1.94	2.31		ug/L		119	70 - 130
Endosulfan sulfate	<0.098		1.94	2.34		ug/L		121	70 - 130
Endrin	<0.098		1.94	2.47		ug/L		128	70 - 130
Endrin aldehyde	<0.098		1.94	1.95		ug/L		101	70 - 130
EPTC	<0.098		1.94	2.38		ug/L		123	70 - 130
Fluoranthene	<0.098		1.94	2.17		ug/L		112	70 - 130
Fluorene	<0.049		1.94	2.16		ug/L		112	70 - 130
gamma-Chlordane	<0.049		1.94	2.20		ug/L		113	70 - 130
Heptachlor	<0.039		1.94	2.30		ug/L		119	70 - 130
Heptachlor epoxide (isomer B)	<0.049		1.94	2.38		ug/L		123	70 - 130
Hexachlorobenzene	<0.049		1.94	2.07		ug/L		107	70 - 130
Hexachlorocyclopentadiene	<0.049		1.94	2.06		ug/L		106	70 - 130
Indeno[1,2,3-cd]pyrene	<0.049		1.94	2.21		ug/L		114	70 - 130
Isophorone	<0.49		1.94	2.13		ug/L		110	70 - 130
Lindane	<0.039		1.94	2.20		ug/L		113	70 - 130
Malathion	<0.098		1.94	2.33		ug/L		120	70 - 130
Methoxychlor	<0.098		1.94	2.47		ug/L		128	70 - 130
Metolachlor	<0.049	F1	1.94	2.58	F1	ug/L		133	70 - 130
Molinate	<0.098		1.94	2.41		ug/L		124	70 - 130
Naphthalene	<0.29		1.94	1.83		ug/L		94	70 - 130
Parathion	<0.098		1.94	2.45		ug/L		126	70 - 130
Pendimethalin (Penoxaline)	<0.098		1.94	2.31		ug/L		119	70 - 130
Phenanthrene	<0.039		1.94	1.98		ug/L		102	70 - 130
Propachlor	<0.049		1.94	2.45		ug/L		127	70 - 130
Pyrene	<0.049		1.94	2.12		ug/L		109	70 - 130
Simazine	<0.049		1.94	2.32		ug/L		119	70 - 130
Terbacil	<0.098	^3+ F1	1.94	2.61	F1	ug/L		134	70 - 130
Terbutylazine	<0.098		1.94	2.43		ug/L		125	70 - 130
Thiobencarb	<0.20		1.94	2.35		ug/L		121	70 - 130
trans-Nonachlor	<0.049		1.94	2.13		ug/L		110	70 - 130
Trifluralin	<0.098		1.94	2.25		ug/L		116	70 - 130

Surrogate	MS	MS Qualifier	Limits
	%Recovery		
2-Nitro-m-xylene	104		70 - 130
Perylene-d12	99		70 - 130
Triphenylphosphate	116		70 - 130



# QC Sample Results

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

Job ID: 380-59480-1

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

**Lab Sample ID: 380-59367-K-1-A DU**  
**Matrix: Water**  
**Analysis Batch: 52496**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 52290**

Analyte	Sample	Sample Qualifier	DU	DU	Unit	D	RPD	Limit
	Result		Result	Qualifier				
1-Methylnaphthalene	<0.097		<0.097		ug/L		NC	20
2,4'-DDD	<0.097	^3+	<0.097		ug/L		NC	20
2,4'-DDE	<0.097		<0.097		ug/L		NC	20
2,4'-DDT	<0.097		<0.097		ug/L		NC	20
2,4-Dinitrotoluene	<0.097		<0.097		ug/L		NC	20
2,6-Dinitrotoluene	<0.097		<0.097		ug/L		NC	20
2-Methylnaphthalene	<0.097		<0.097		ug/L		NC	20
4,4'-DDD	<0.097		<0.097		ug/L		NC	20
4,4'-DDE	<0.097		<0.097		ug/L		NC	20
4,4'-DDT	<0.097	^3+	<0.097		ug/L		NC	20
Acenaphthene	<0.097		<0.097		ug/L		NC	20
Acenaphthylene	<0.097		<0.097		ug/L		NC	20
Acetochlor	<0.097		<0.097		ug/L		NC	20
Alachlor	<0.049		<0.049		ug/L		NC	20
alpha-BHC	<0.097		<0.097		ug/L		NC	20
alpha-Chlordane	<0.049		<0.049		ug/L		NC	20
Anthracene	<0.019		<0.019		ug/L		NC	20
Atrazine	<0.049		<0.049		ug/L		NC	20
Benz(a)anthracene	<0.049		<0.049		ug/L		NC	20
Benzo[a]pyrene	<0.019	^3+	<0.019		ug/L		NC	20
Benzo[b]fluoranthene	<0.019	^3+	<0.019		ug/L		NC	20
Benzo[g,h,i]perylene	<0.049		<0.049		ug/L		NC	20
Benzo[k]fluoranthene	<0.019	^3+	<0.019		ug/L		NC	20
beta-BHC	<0.097		<0.097		ug/L		NC	20
Bis(2-ethylhexyl) phthalate	<0.58		<0.58		ug/L		NC	20
Bromacil	<0.097	^3+	<0.097		ug/L		NC	20
Butachlor	<0.049	^3+	<0.049		ug/L		NC	20
Butylbenzylphthalate	<0.49	^3+	<0.49		ug/L		NC	20
Chlorobenzilate	<0.097	^3+	<0.097		ug/L		NC	20
Chloroneb	<0.097		<0.097		ug/L		NC	20
Chlorothalonil (Draconil, Bravo)	<0.097		<0.097		ug/L		NC	20
Chlorpyrifos	<0.049		<0.049		ug/L		NC	20
Chrysene	<0.019		<0.019		ug/L		NC	20
delta-BHC	<0.097		<0.097		ug/L		NC	20
Di(2-ethylhexyl)adipate	<0.58	^3+ *+	0.756	*+	ug/L		NC	20
Dibenz(a,h)anthracene	<0.049		<0.049		ug/L		NC	20
Diclorvos (DDVP)	<0.049		<0.049		ug/L		NC	20
Dieldrin	<0.19		<0.19		ug/L		NC	20
Diethylphthalate	<0.49		<0.49		ug/L		NC	20
Dimethylphthalate	<0.49		<0.49		ug/L		NC	20
Di-n-butyl phthalate	<0.97		<0.97		ug/L		NC	20
Di-n-octyl phthalate	<0.097		<0.097		ug/L		NC	20
Endosulfan I (Alpha)	<0.097		<0.097		ug/L		NC	20
Endosulfan II (Beta)	<0.097		<0.097		ug/L		NC	20
Endosulfan sulfate	<0.097		<0.097		ug/L		NC	20
Endrin	<0.097		<0.097		ug/L		NC	20
Endrin aldehyde	<0.097		<0.097		ug/L		NC	20
EPTC	<0.097		<0.097		ug/L		NC	20



# QC Sample Results

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

Job ID: 380-59480-1

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

**Lab Sample ID: 380-59367-K-1-A DU**  
**Matrix: Water**  
**Analysis Batch: 52496**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 52290**

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Fluoranthene	<0.097		<0.097		ug/L		NC	20
Fluorene	<0.049		<0.049		ug/L		NC	20
gamma-Chlordane	<0.049		<0.049		ug/L		NC	20
Heptachlor	<0.039		<0.039		ug/L		NC	20
Heptachlor epoxide (isomer B)	<0.049		<0.049		ug/L		NC	20
Hexachlorobenzene	<0.049		<0.049		ug/L		NC	20
Hexachlorocyclopentadiene	<0.049		<0.049		ug/L		NC	20
Indeno[1,2,3-cd]pyrene	<0.049		<0.049		ug/L		NC	20
Isophorone	<0.49		<0.49		ug/L		NC	20
Lindane	<0.039		<0.039		ug/L		NC	20
Malathion	<0.097		<0.097		ug/L		NC	20
Methoxychlor	<0.097		<0.097		ug/L		NC	20
Metolachlor	<0.049		<0.049		ug/L		NC	20
Molinate	<0.097		<0.097		ug/L		NC	20
Naphthalene	<0.29		<0.29		ug/L		NC	20
Parathion	<0.097		<0.097		ug/L		NC	20
Pendimethalin (Penoxaline)	<0.097		<0.097		ug/L		NC	20
Phenanthrene	<0.039		<0.039		ug/L		NC	20
Propachlor	<0.049		<0.049		ug/L		NC	20
Pyrene	<0.049		<0.049		ug/L		NC	20
Simazine	<0.049		<0.049		ug/L		NC	20
Terbacil	<0.097	^3+	<0.097		ug/L		NC	20
Terbutylazine	<0.097		<0.097		ug/L		NC	20
Thiobencarb	<0.19		<0.19		ug/L		NC	20
Total Permethrin (mixed isomers)	<0.19		<0.19		ug/L		NC	20
trans-Nonachlor	<0.049		<0.049		ug/L		NC	20
Trifluralin	<0.097		<0.097		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	90		70 - 130					
Perylene-d12	96		70 - 130					
Triphenylphosphate	121		70 - 130					

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

**Lab Sample ID: MBL 380-53809/21-A**  
**Matrix: Water**  
**Analysis Batch: 54177**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 53809**

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		08/30/23 14:48	09/01/23 17:47	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0	ng/L		08/30/23 14:48	09/01/23 17:47	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		08/30/23 14:48	09/01/23 17:47	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		08/30/23 14:48	09/01/23 17:47	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		08/30/23 14:48	09/01/23 17:47	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		08/30/23 14:48	09/01/23 17:47	1

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# QC Sample Results

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

Job ID: 380-59480-1

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

**Lab Sample ID: MBL 380-53809/21-A**  
**Matrix: Water**  
**Analysis Batch: 54177**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 53809**

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		08/30/23 14:48	09/01/23 17:47	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		08/30/23 14:48	09/01/23 17:47	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		08/30/23 14:48	09/01/23 17:47	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		08/30/23 14:48	09/01/23 17:47	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		08/30/23 14:48	09/01/23 17:47	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		08/30/23 14:48	09/01/23 17:47	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		08/30/23 14:48	09/01/23 17:47	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		08/30/23 14:48	09/01/23 17:47	1
Perfluorobutanoic acid (PFBA)	<0.69		2.0	ng/L		08/30/23 14:48	09/01/23 17:47	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<0.38		2.0	ng/L		08/30/23 14:48	09/01/23 17:47	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<0.37		2.0	ng/L		08/30/23 14:48	09/01/23 17:47	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<0.48		2.0	ng/L		08/30/23 14:48	09/01/23 17:47	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.47		2.0	ng/L		08/30/23 14:48	09/01/23 17:47	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.25		2.0	ng/L		08/30/23 14:48	09/01/23 17:47	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.46		2.0	ng/L		08/30/23 14:48	09/01/23 17:47	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.15		2.0	ng/L		08/30/23 14:48	09/01/23 17:47	1
Perfluoropentanoic acid (PFPeA)	<0.38		2.0	ng/L		08/30/23 14:48	09/01/23 17:47	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.36		2.0	ng/L		08/30/23 14:48	09/01/23 17:47	1
Perfluoropentanesulfonic acid (PFPeS)	<0.39		2.0	ng/L		08/30/23 14:48	09/01/23 17:47	1

Isotope Dilution	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	82		50 - 200	08/30/23 14:48	09/01/23 17:47	1
13C6 PFDA	89		50 - 200	08/30/23 14:48	09/01/23 17:47	1
13C5 PFHxA	95		50 - 200	08/30/23 14:48	09/01/23 17:47	1
13C4 PFHpA	94		50 - 200	08/30/23 14:48	09/01/23 17:47	1
13C8 PFOA	92		50 - 200	08/30/23 14:48	09/01/23 17:47	1
13C9 PFNA	91		50 - 200	08/30/23 14:48	09/01/23 17:47	1
13C7 PFUnA	89		50 - 200	08/30/23 14:48	09/01/23 17:47	1
13C2 PFDoA	88		50 - 200	08/30/23 14:48	09/01/23 17:47	1
13C4 PFBA	91		50 - 200	08/30/23 14:48	09/01/23 17:47	1
13C5 PFPeA	90		50 - 200	08/30/23 14:48	09/01/23 17:47	1
13C3 PFBS	88		50 - 200	08/30/23 14:48	09/01/23 17:47	1
13C3 PFHxS	90		50 - 200	08/30/23 14:48	09/01/23 17:47	1
13C8 PFOS	93		50 - 200	08/30/23 14:48	09/01/23 17:47	1
13C2-4:2-FTS	104		50 - 200	08/30/23 14:48	09/01/23 17:47	1
13C2-6:2-FTS	95		50 - 200	08/30/23 14:48	09/01/23 17:47	1
13C2-8:2-FTS	95		50 - 200	08/30/23 14:48	09/01/23 17:47	1

# QC Sample Results

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

Job ID: 380-59480-1

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

**Lab Sample ID: LCS 380-53809/23-A**  
**Matrix: Water**  
**Analysis Batch: 54177**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 53809**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	120	112		ng/L		93	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	120	116		ng/L		97	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	120	117		ng/L		97	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	120	115		ng/L		95	70 - 130
Perfluorobutanesulfonic acid (PFBS)	120	119		ng/L		99	70 - 130
Perfluorodecanoic acid (PFDA)	120	118		ng/L		98	70 - 130
Perfluorododecanoic acid (PFDoA)	120	119		ng/L		99	70 - 130
Perfluoroheptanoic acid (PFHpA)	120	113		ng/L		94	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	120	123		ng/L		103	70 - 130
Perfluorohexanoic acid (PFHxA)	120	116		ng/L		96	70 - 130
Perfluorononanoic acid (PFNA)	120	117		ng/L		98	70 - 130
Perfluorooctanesulfonic acid (PFOS)	120	117		ng/L		98	70 - 130
Perfluorooctanoic acid (PFOA)	120	115		ng/L		96	70 - 130
Perfluoroundecanoic acid (PFUnA)	120	119		ng/L		99	70 - 130
Perfluorobutanoic acid (PFBA)	120	116		ng/L		97	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	120	119		ng/L		100	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	120	114		ng/L		95	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	120	116		ng/L		97	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	120	116		ng/L		97	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	120	116		ng/L		97	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	120	119		ng/L		99	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	120	119		ng/L		99	70 - 130
Perfluoropentanoic acid (PFPeA)	120	117		ng/L		97	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	120	114		ng/L		95	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	120	129		ng/L		108	70 - 130

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	96		50 - 200
13C6 PFDA	96		50 - 200
13C5 PFHxA	99		50 - 200
13C4 PFHpA	93		50 - 200
13C8 PFOA	96		50 - 200
13C9 PFNA	98		50 - 200

# QC Sample Results

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

Job ID: 380-59480-1

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

**Lab Sample ID: LCS 380-53809/23-A**  
**Matrix: Water**  
**Analysis Batch: 54177**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 53809**

<i>Isotope Dilution</i>	<i>LCS %Recovery</i>	<i>LCS Qualifier</i>	<i>Limits</i>
13C7 PFUnA	95		50 - 200
13C2 PFDoA	98		50 - 200
13C4 PFBA	94		50 - 200
13C5 PFPeA	97		50 - 200
13C3 PFBS	92		50 - 200
13C3 PFHxS	89		50 - 200
13C8 PFOS	94		50 - 200
13C2-4:2-FTS	95		50 - 200
13C2-6:2-FTS	95		50 - 200
13C2-8:2-FTS	91		50 - 200

**Lab Sample ID: LCSD 380-53809/24-A**  
**Matrix: Water**  
**Analysis Batch: 54177**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 53809**

<i>Analyte</i>	<i>Spike Added</i>	<i>LCSD Result</i>	<i>LCSD 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)	120	115		ng/L		96	70 - 130	3	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	120	115		ng/L		96	70 - 130	1	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	120	120		ng/L		100	70 - 130	3	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	120	123		ng/L		103	70 - 130	7	30
Perfluorobutanesulfonic acid (PFBS)	120	117		ng/L		98	70 - 130	2	30
Perfluorodecanoic acid (PFDA)	120	119		ng/L		99	70 - 130	1	30
Perfluorododecanoic acid (PFDoA)	120	120		ng/L		100	70 - 130	1	30
Perfluoroheptanoic acid (PFHpA)	120	118		ng/L		98	70 - 130	5	30
Perfluorohexanesulfonic acid (PFHxS)	120	121		ng/L		101	70 - 130	2	30
Perfluorohexanoic acid (PFHxA)	120	113		ng/L		94	70 - 130	2	30
Perfluorononanoic acid (PFNA)	120	122		ng/L		101	70 - 130	4	30
Perfluorooctanesulfonic acid (PFOS)	120	120		ng/L		100	70 - 130	2	30
Perfluorooctanoic acid (PFOA)	120	119		ng/L		99	70 - 130	3	30
Perfluoroundecanoic acid (PFUnA)	120	122		ng/L		102	70 - 130	3	30
Perfluorobutanoic acid (PFBA)	120	119		ng/L		99	70 - 130	3	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	120	122		ng/L		101	70 - 130	2	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	120	117		ng/L		98	70 - 130	3	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	120	111		ng/L		93	70 - 130	4	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	120	127		ng/L		106	70 - 130	9	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	120	118		ng/L		98	70 - 130	1	30

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# QC Sample Results

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

Job ID: 380-59480-1

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

**Lab Sample ID: LCSD 380-53809/24-A**  
**Matrix: Water**  
**Analysis Batch: 54177**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 53809**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluoro-3-methoxypropanoic acid (PFMPA)	120	119		ng/L		99	70 - 130	0	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	120	121		ng/L		100	70 - 130	1	30
Perfluoropentanoic acid (PFPeA)	120	124		ng/L		104	70 - 130	6	30
Perfluoroheptanesulfonic acid (PFHpS)	120	115		ng/L		95	70 - 130	0	30
Perfluoropentanesulfonic acid (PFPeS)	120	125		ng/L		104	70 - 130	3	30

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	LCSD Limits
13C3 HFPO-DA	93		50 - 200
13C6 PFDA	97		50 - 200
13C5 PFHxA	99		50 - 200
13C4 PFHpA	93		50 - 200
13C8 PFOA	95		50 - 200
13C9 PFNA	99		50 - 200
13C7 PFUnA	95		50 - 200
13C2 PFDoA	99		50 - 200
13C4 PFBA	89		50 - 200
13C5 PFPeA	88		50 - 200
13C3 PFBS	91		50 - 200
13C3 PFHxS	88		50 - 200
13C8 PFOS	93		50 - 200
13C2-4:2-FTS	90		50 - 200
13C2-6:2-FTS	92		50 - 200
13C2-8:2-FTS	89		50 - 200

**Lab Sample ID: MRL 380-53809/22-A**  
**Matrix: Water**  
**Analysis Batch: 54177**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 53809**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.00	2.17	J	ng/L		108	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.00	2.33	J	ng/L		116	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	2.10	J	ng/L		105	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	2.16	J	ng/L		108	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.00	2.26	J	ng/L		113	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	2.19	J	ng/L		109	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	2.19	J	ng/L		109	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	2.13	J	ng/L		106	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.00	2.20	J	ng/L		110	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	2.03	J	ng/L		101	50 - 150

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# QC Sample Results

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

Job ID: 380-59480-1

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

**Lab Sample ID: MRL 380-53809/22-A**  
**Matrix: Water**  
**Analysis Batch: 54177**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 53809**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorononanoic acid (PFNA)	2.00	2.21	J	ng/L		110	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.00	2.23	J	ng/L		111	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	2.39	J	ng/L		119	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	2.12	J	ng/L		106	50 - 150
Perfluorobutanoic acid (PFBA)	2.00	2.35	J	ng/L		117	50 - 150
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	2.00	2.32	J	ng/L		116	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	2.00	2.29	J	ng/L		114	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	2.00	2.30	J	ng/L		115	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.00	2.24	J	ng/L		112	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	2.00	2.34	J	ng/L		117	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.00	2.12	J	ng/L		106	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.00	2.10	J	ng/L		105	50 - 150
Perfluoropentanoic acid (PFPeA)	2.00	2.41	J	ng/L		120	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	2.00	2.20	J	ng/L		110	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	2.00	2.21	J	ng/L		110	50 - 150

Isotope Dilution	MRL %Recovery	MRL Qualifier	MRL Limits
13C3 HFPO-DA	83		50 - 200
13C6 PFDA	89		50 - 200
13C5 PFHxA	100		50 - 200
13C4 PFHpA	96		50 - 200
13C8 PFOA	94		50 - 200
13C9 PFNA	90		50 - 200
13C7 PFUnA	90		50 - 200
13C2 PFDoA	90		50 - 200
13C4 PFBA	94		50 - 200
13C5 PFPeA	93		50 - 200
13C3 PFBS	94		50 - 200
13C3 PFHxS	91		50 - 200
13C8 PFOS	93		50 - 200
13C2-4:2-FTS	108		50 - 200
13C2-6:2-FTS	97		50 - 200
13C2-8:2-FTS	90		50 - 200





# QC Sample Results

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

Job ID: 380-59480-1

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

**Lab Sample ID: 380-59313-O-1-A MS**  
**Matrix: Water**  
**Analysis Batch: 54177**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 53809**

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>MS MS Qualifier</i>	<i>Limits</i>
13C7 PFUnA	85		50 - 200
13C2 PFDoA	87		50 - 200
13C4 PFBA	59		50 - 200
13C5 PFPeA	59		50 - 200
13C3 PFBS	94		50 - 200
13C3 PFHxS	96		50 - 200
13C8 PFOS	100		50 - 200
13C2-4:2-FTS	105		50 - 200
13C2-6:2-FTS	109		50 - 200
13C2-8:2-FTS	104		50 - 200

**Lab Sample ID: 380-59313-P-1-A MSD**  
**Matrix: Water**  
**Analysis Batch: 54177**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 53809**

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MSD Result</i>	<i>MSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		120	109		ng/L		91	70 - 130	1	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		120	115		ng/L		95	70 - 130	3	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		120	107		ng/L		89	70 - 130	5	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		120	122		ng/L		102	70 - 130	9	30
Perfluorobutanesulfonic acid (PFBS)	<2.0		120	121		ng/L		100	70 - 130	2	30
Perfluorodecanoic acid (PFDA)	<2.0		120	122		ng/L		101	70 - 130	2	30
Perfluorododecanoic acid (PFDoA)	<2.0		120	122		ng/L		101	70 - 130	3	30
Perfluoroheptanoic acid (PFHpA)	<2.0		120	116		ng/L		97	70 - 130	4	30
Perfluorohexanesulfonic acid (PFHxS)	<2.0		120	123		ng/L		102	70 - 130	6	30
Perfluorohexanoic acid (PFHxA)	<2.0		120	118		ng/L		97	70 - 130	2	30
Perfluorononanoic acid (PFNA)	<2.0		120	123		ng/L		103	70 - 130	9	30
Perfluorooctanesulfonic acid (PFOS)	<2.0		120	115		ng/L		96	70 - 130	2	30
Perfluorooctanoic acid (PFOA)	<2.0		120	115		ng/L		95	70 - 130	1	30
Perfluoroundecanoic acid (PFUnA)	<2.0		120	118		ng/L		98	70 - 130	3	30
Perfluorobutanoic acid (PFBA)	<2.0		120	115		ng/L		96	70 - 130	1	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		120	125		ng/L		104	70 - 130	12	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		120	120		ng/L		99	70 - 130	0	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		120	116		ng/L		97	70 - 130	6	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		120	105		ng/L		87	70 - 130	9	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		120	112		ng/L		93	70 - 130	3	30

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# QC Sample Results

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

Job ID: 380-59480-1

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

**Lab Sample ID: 380-59313-P-1-A MSD**  
**Matrix: Water**  
**Analysis Batch: 54177**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 53809**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		120	110		ng/L		92	70 - 130	0	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		120	117		ng/L		97	70 - 130	6	30
Perfluoropentanoic acid (PFPeA)	<2.0		120	121		ng/L		100	70 - 130	6	30
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		120	113		ng/L		94	70 - 130	4	30
Perfluoropentanesulfonic acid (PFPeS)	<2.0		120	123		ng/L		102	70 - 130	6	30
		<b>MSD</b>	<b>MSD</b>								
<b>Isotope Dilution</b>		<b>%Recovery</b>	<b>Qualifier</b>								<b>Limits</b>
13C3 HFPO-DA		58									50 - 200
13C6 PFDA		81									50 - 200
13C5 PFHxA		64									50 - 200
13C4 PFHpA		65									50 - 200
13C8 PFOA		73									50 - 200
13C9 PFNA		78									50 - 200
13C7 PFUnA		83									50 - 200
13C2 PFDoA		85									50 - 200
13C4 PFBA		65									50 - 200
13C5 PFPeA		63									50 - 200
13C3 PFBS		93									50 - 200
13C3 PFHxS		90									50 - 200
13C8 PFOS		97									50 - 200
13C2-4:2-FTS		98									50 - 200
13C2-6:2-FTS		113									50 - 200
13C2-8:2-FTS		95									50 - 200

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

**Lab Sample ID: MB 380-52564/21-A**  
**Matrix: Water**  
**Analysis Batch: 52777**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 52564**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 01:32	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 01:32	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 01:32	1
N-methylperfluorooctanesulfonamide acetic acid (NMeFOSAA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 01:32	1
N-ethylperfluorooctanesulfonamide acetic acid (NEtFOSAA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 01:32	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 01:32	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 01:32	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 01:32	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 01:32	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 01:32	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 01:32	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 01:32	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 01:32	1

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# QC Sample Results

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

Job ID: 380-59480-1

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

**Lab Sample ID: MB 380-52564/21-A**  
**Matrix: Water**  
**Analysis Batch: 52777**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 52564**

Analyte	MB	MB	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 01:32	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 01:32	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 01:32	1
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 01:32	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		08/21/23 06:13	08/23/23 01:32	1

  

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
d5-NEtFOSAA	94		70 - 130	08/21/23 06:13	08/23/23 01:32	1
13C2 PFHxA	106		70 - 130	08/21/23 06:13	08/23/23 01:32	1
13C2 PFDA	116		70 - 130	08/21/23 06:13	08/23/23 01:32	1
13C3-GenX	104		70 - 130	08/21/23 06:13	08/23/23 01:32	1

**Lab Sample ID: LCS 380-52564/23-A**  
**Matrix: Water**  
**Analysis Batch: 52777**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 52564**

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	25.1	21.7		ng/L		87	70 - 130
Perfluorooctanesulfonic acid (PFOS)	23.2	23.6		ng/L		102	70 - 130
Perfluoroundecanoic acid (PFUnA)	25.1	25.0		ng/L		100	70 - 130
N-methylperfluorooctanesulfonamideacetic acid (NMeFOSAA)	25.1	23.9		ng/L		95	70 - 130
N-ethylperfluorooctanesulfonamideacetic acid (NEtFOSAA)	25.1	22.5		ng/L		90	70 - 130
Perfluorohexanoic acid (PFHxA)	25.1	25.7		ng/L		103	70 - 130
Perfluorododecanoic acid (PFDoA)	25.1	22.5		ng/L		90	70 - 130
Perfluorooctanoic acid (PFOA)	25.1	26.7		ng/L		107	70 - 130
Perfluorodecanoic acid (PFDA)	25.1	24.9		ng/L		99	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	22.9	24.8		ng/L		108	70 - 130
Perfluorobutanesulfonic acid (PFBS)	22.2	20.7		ng/L		93	70 - 130
Perfluoroheptanoic acid (PFHpA)	25.1	26.1		ng/L		104	70 - 130
Perfluorononanoic acid (PFNA)	25.1	26.7		ng/L		107	70 - 130
Perfluorotetradecanoic acid (PFTA)	25.1	23.2		ng/L		93	70 - 130
Perfluorotridecanoic acid (PFTrDA)	25.1	24.9		ng/L		99	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	23.4	23.7		ng/L		101	70 - 130
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	23.7	22.4		ng/L		95	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	23.7	24.1		ng/L		102	70 - 130

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-59480-1

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

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
d5-NEtFOSAA	90		70 - 130
13C2 PFHxA	102		70 - 130
13C2 PFDA	101		70 - 130
13C3-GenX	94		70 - 130

Lab Sample ID: LCSD 380-52564/24-A  
Matrix: Water  
Analysis Batch: 52777

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 52564

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	25.1	21.0		ng/L		84	70 - 130	3	30	
Perfluorooctanesulfonic acid (PFOS)	23.2	22.8		ng/L		98	70 - 130	3	30	
Perfluoroundecanoic acid (PFUnA)	25.1	24.0		ng/L		96	70 - 130	4	30	
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	25.1	21.9		ng/L		87	70 - 130	9	30	
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	25.1	21.1		ng/L		84	70 - 130	6	30	
Perfluorohexanoic acid (PFHxA)	25.1	28.1		ng/L		112	70 - 130	9	30	
Perfluorododecanoic acid (PFDoA)	25.1	21.6		ng/L		86	70 - 130	4	30	
Perfluorooctanoic acid (PFOA)	25.1	27.2		ng/L		108	70 - 130	2	30	
Perfluorodecanoic acid (PFDA)	25.1	24.1		ng/L		96	70 - 130	3	30	
Perfluorohexanesulfonic acid (PFHxS)	22.9	24.2		ng/L		106	70 - 130	2	30	
Perfluorobutanesulfonic acid (PFBS)	22.2	21.0		ng/L		95	70 - 130	2	30	
Perfluoroheptanoic acid (PFHpA)	25.1	28.4		ng/L		113	70 - 130	8	30	
Perfluorononanoic acid (PFNA)	25.1	26.2		ng/L		104	70 - 130	2	30	
Perfluorotetradecanoic acid (PFTA)	25.1	22.0		ng/L		88	70 - 130	5	30	
Perfluorotridecanoic acid (PFTrDA)	25.1	23.3		ng/L		93	70 - 130	7	30	
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	23.4	22.7		ng/L		97	70 - 130	4	30	
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	23.7	20.4		ng/L		86	70 - 130	10	30	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	23.7	25.0		ng/L		106	70 - 130	4	30	

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
d5-NEtFOSAA	83		70 - 130
13C2 PFHxA	117		70 - 130
13C2 PFDA	96		70 - 130
13C3-GenX	106		70 - 130

# QC Sample Results

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

Job ID: 380-59480-1

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

**Lab Sample ID: MRL 380-52564/22-A**  
**Matrix: Water**  
**Analysis Batch: 52777**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 52564**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	1.53	J	ng/L		76	50 - 150
Perfluorooctanesulfonic acid (PFOS)	1.86	2.00	J	ng/L		108	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	2.11	J	ng/L		105	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	1.96	J	ng/L		98	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	1.79	J	ng/L		89	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	2.48	J	ng/L		124	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	1.93	J	ng/L		96	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	2.32	J	ng/L		116	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	2.20	J	ng/L		110	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	1.83	2.10	J	ng/L		115	50 - 150
Perfluorobutanesulfonic acid (PFBS)	1.77	1.72	J	ng/L		97	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	2.36	J	ng/L		118	50 - 150
Perfluorononanoic acid (PFNA)	2.00	2.40	J	ng/L		120	50 - 150
Perfluorotetradecanoic acid (PFTA)	2.00	2.15	J	ng/L		107	50 - 150
Perfluorotridecanoic acid (PFTTrDA)	2.00	2.26	J	ng/L		113	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	1.87	1.97	J	ng/L		105	50 - 150
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	1.89	1.87	J	ng/L		99	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.89	2.08	J	ng/L		110	50 - 150

Surrogate	MRL %Recovery	MRL Qualifier	MRL Limits
d5-NEtFOSAA	84		70 - 130
13C2 PFHxA	100		70 - 130
13C2 PFDA	102		70 - 130
13C3-GenX	96		70 - 130

**Lab Sample ID: 380-59399-B-1-A MS**  
**Matrix: Water**  
**Analysis Batch: 52777**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 52564**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		25.2	20.6		ng/L		82	70 - 130
Perfluorooctanesulfonic acid (PFOS)	<2.0		23.3	22.0		ng/L		94	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		25.2	22.2		ng/L		88	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		25.2	21.1		ng/L		84	70 - 130

Eurofins Eaton Analytical Pomona





# QC Association Summary

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

Job ID: 380-59480-1

## GC/MS Semi VOA

### Prep Batch: 52290

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-59480-1	MOANALUA WELLS	Total/NA	Drinking Water	525.2	
380-59480-2	HALAWA WELLS UNITS 1 & 2	Total/NA	Drinking Water	525.2	
MB 380-52290/21-A	Method Blank	Total/NA	Water	525.2	
LCS 380-52290/23-A	Lab Control Sample	Total/NA	Water	525.2	
LCSD 380-52290/24-A	Lab Control Sample Dup	Total/NA	Water	525.2	
MRL 380-52290/22-A	Lab Control Sample	Total/NA	Water	525.2	
380-59356-K-1-A MS	Matrix Spike	Total/NA	Water	525.2	
380-59367-K-1-A DU	Duplicate	Total/NA	Water	525.2	

### Analysis Batch: 52496

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-59480-1	MOANALUA WELLS	Total/NA	Drinking Water	525.2	52290
380-59480-2	HALAWA WELLS UNITS 1 & 2	Total/NA	Drinking Water	525.2	52290
MB 380-52290/21-A	Method Blank	Total/NA	Water	525.2	52290
LCS 380-52290/23-A	Lab Control Sample	Total/NA	Water	525.2	52290
LCSD 380-52290/24-A	Lab Control Sample Dup	Total/NA	Water	525.2	52290
MRL 380-52290/22-A	Lab Control Sample	Total/NA	Water	525.2	52290
380-59356-K-1-A MS	Matrix Spike	Total/NA	Water	525.2	52290
380-59367-K-1-A DU	Duplicate	Total/NA	Water	525.2	52290

## LCMS

### Prep Batch: 52564

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-59480-1	MOANALUA WELLS	Total/NA	Drinking Water	537.1 DW	
380-59480-2	HALAWA WELLS UNITS 1 & 2	Total/NA	Drinking Water	537.1 DW	
380-59480-5	FB MOANALUA WELLS	Total/NA	Water	537.1 DW	
380-59480-6	FB HALAWA WELLS UNITS 1 & 2	Total/NA	Water	537.1 DW	
MB 380-52564/21-A	Method Blank	Total/NA	Water	537.1 DW	
LCS 380-52564/23-A	Lab Control Sample	Total/NA	Water	537.1 DW	
LCSD 380-52564/24-A	Lab Control Sample Dup	Total/NA	Water	537.1 DW	
MRL 380-52564/22-A	Lab Control Sample	Total/NA	Water	537.1 DW	
380-59399-B-1-A MS	Matrix Spike	Total/NA	Water	537.1 DW	
380-59399-C-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	537.1 DW	

### Analysis Batch: 52777

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-59480-1	MOANALUA WELLS	Total/NA	Drinking Water	537.1	52564
380-59480-2	HALAWA WELLS UNITS 1 & 2	Total/NA	Drinking Water	537.1	52564
380-59480-5	FB MOANALUA WELLS	Total/NA	Water	537.1	52564
380-59480-6	FB HALAWA WELLS UNITS 1 & 2	Total/NA	Water	537.1	52564
MB 380-52564/21-A	Method Blank	Total/NA	Water	537.1	52564
LCS 380-52564/23-A	Lab Control Sample	Total/NA	Water	537.1	52564
LCSD 380-52564/24-A	Lab Control Sample Dup	Total/NA	Water	537.1	52564
MRL 380-52564/22-A	Lab Control Sample	Total/NA	Water	537.1	52564
380-59399-B-1-A MS	Matrix Spike	Total/NA	Water	537.1	52564
380-59399-C-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	537.1	52564

### Prep Batch: 53809

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-59480-1	MOANALUA WELLS	Total/NA	Drinking Water	533	

Eurofins Eaton Analytical Pomona

# QC Association Summary

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

Job ID: 380-59480-1

## LCMS (Continued)

### Prep Batch: 53809 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-59480-2	HALAWA WELLS UNITS 1 & 2	Total/NA	Drinking Water	533	
380-59480-5	FB MOANALUA WELLS	Total/NA	Water	533	
380-59480-6	FB HALAWA WELLS UNITS 1 & 2	Total/NA	Water	533	
MBL 380-53809/21-A	Method Blank	Total/NA	Water	533	
LCS 380-53809/23-A	Lab Control Sample	Total/NA	Water	533	
LCSD 380-53809/24-A	Lab Control Sample Dup	Total/NA	Water	533	
MRL 380-53809/22-A	Lab Control Sample	Total/NA	Water	533	
380-59313-O-1-A MS	Matrix Spike	Total/NA	Water	533	
380-59313-P-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	

### Analysis Batch: 54177

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-59480-1	MOANALUA WELLS	Total/NA	Drinking Water	533	53809
380-59480-2	HALAWA WELLS UNITS 1 & 2	Total/NA	Drinking Water	533	53809
380-59480-5	FB MOANALUA WELLS	Total/NA	Water	533	53809
380-59480-6	FB HALAWA WELLS UNITS 1 & 2	Total/NA	Water	533	53809
MBL 380-53809/21-A	Method Blank	Total/NA	Water	533	53809
LCS 380-53809/23-A	Lab Control Sample	Total/NA	Water	533	53809
LCSD 380-53809/24-A	Lab Control Sample Dup	Total/NA	Water	533	53809
MRL 380-53809/22-A	Lab Control Sample	Total/NA	Water	533	53809
380-59313-O-1-A MS	Matrix Spike	Total/NA	Water	533	53809
380-59313-P-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	53809



# Lab Chronicle

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

Job ID: 380-59480-1

## Client Sample ID: MOANALUA WELLS

Lab Sample ID: 380-59480-1

Date Collected: 08/15/23 11:00

Matrix: Drinking Water

Date Received: 08/17/23 09:39

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	525.2			52290	N8NE	EA POM	08/18/23 14:03
Total/NA	Analysis	525.2		1	52496	Q8LA	EA POM	08/20/23 17:33
Total/NA	Prep	533			53809	UMV1	EA POM	08/30/23 14:48
Total/NA	Analysis	533		1	54177	UKDT	EA POM	09/01/23 19:51
Total/NA	Prep	537.1 DW			52564	U7RS	EA POM	08/21/23 06:13
Total/NA	Analysis	537.1		1	52777	UKYM	EA POM	08/23/23 05:17

## Client Sample ID: HALAWA WELLS UNITS 1 & 2

Lab Sample ID: 380-59480-2

Date Collected: 08/15/23 10:00

Matrix: Drinking Water

Date Received: 08/17/23 09:39

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	525.2			52290	N8NE	EA POM	08/18/23 14:03
Total/NA	Analysis	525.2		1	52496	Q8LA	EA POM	08/20/23 17:52
Total/NA	Prep	533			53809	UMV1	EA POM	08/30/23 14:48
Total/NA	Analysis	533		1	54177	UKDT	EA POM	09/01/23 20:01
Total/NA	Prep	537.1 DW			52564	U7RS	EA POM	08/21/23 06:13
Total/NA	Analysis	537.1		1	52777	UKYM	EA POM	08/23/23 05:27

## Client Sample ID: FB MOANALUA WELLS

Lab Sample ID: 380-59480-5

Date Collected: 08/15/23 11:00

Matrix: Water

Date Received: 08/17/23 09:39

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			53809	UMV1	EA POM	08/30/23 14:48
Total/NA	Analysis	533		1	54177	UKDT	EA POM	09/01/23 20:11
Total/NA	Prep	537.1 DW			52564	U7RS	EA POM	08/21/23 06:13
Total/NA	Analysis	537.1		1	52777	UKYM	EA POM	08/23/23 05:36

## Client Sample ID: FB HALAWA WELLS UNITS 1 & 2

Lab Sample ID: 380-59480-6

Date Collected: 08/15/23 10:00

Matrix: Water

Date Received: 08/17/23 09:39

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			53809	UMV1	EA POM	08/30/23 14:48
Total/NA	Analysis	533		1	54177	UKDT	EA POM	09/01/23 20:30
Total/NA	Prep	537.1 DW			52564	U7RS	EA POM	08/21/23 06:13
Total/NA	Analysis	537.1		1	52777	UKYM	EA POM	08/23/23 05:46

**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: 380-59480-1

## 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: 380-59480-1

## 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: 380-59480-1

## Laboratory: Eurofins Eaton Analytical Pomona (Continued)

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

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

# Method Summary

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

Job ID: 380-59480-1

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: 380-59480-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	PWSID Number
380-59480-1	MOANALUA WELLS	Drinking Water	08/15/23 11:00	08/17/23 09:39	HI0000331
380-59480-2	HALAWA WELLS UNITS 1 & 2	Drinking Water	08/15/23 10:00	08/17/23 09:39	HI0000331
380-59480-5	FB MOANALUA WELLS	Water	08/15/23 11:00	08/17/23 09:39	HI0000331
380-59480-6	FB HALAWA WELLS UNITS 1 & 2	Water	08/15/23 10:00	08/17/23 09:39	HI0000331

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# Chain of Custody Record

<b>Client Information</b>		Lab P/M Arada, Rachelle		Carrier Tracking No(s)		COC No 380-27941-2757 2	
Client Contact: Dr Ron Fenstermacher		E-Mail Rachelle.Arada@eurofins.com		State of Origin		Page Page 2 of 2	
Company: City & County of Honolulu		PWSID		Analysis Requested		Job #	
Address: 630 South Beretania Street, Chemistry Lab		Due Date Requested:		533 - All Analytes		Preservation Codes:	
City: Honolulu		TAT Requested (days):		537.1_DW_PRC - 637.1 Full List		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
State, Zip HI, 96843		Compliance Project: <input type="checkbox"/> No		SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)	
Phone: 808-748-5091 (tel)		PO # C20525101 exp 05312023		SUBCONTRACT - (MOD) 626plus PLUS TICs		Total Number of Containers	
Email: rfenstermacher@hbws.org		WO #		SUBCONTRACT - 8915 Diesel LL (EAL) and Motor Oil			
Project Name: RED-HILL/HBWS sites Event Desc. RUSH Weekly Red Hill		Project # 38001111		SUBCONTRACT - 625 PAH Physis LL (EAL) + TICs			
Site		SSOW#		SUBCONTRACT - 8915 Gas (Purgeable) LL (EAL)			
Sample Identification		Sample Date		SUBCONTRACT - 625 PAH Physis LL (EAL) + TICs		Special Instructions/Note:	
MOANALUA WELLS		8/15/2023		Form MS/MSD (Yes or No)		X	
AIEA GULCH WELLS PUMP2		100		Field Filtered Sample (Yes or No)		X	
AIEA WELLS PUMPS 1&2 (260)				RA		Y	
HALAWA WELLS UNITS 1&2		8/15/2023		RA		3	
FB MOANALUA WELLS		8/15/2023		RA		3	
FB AIEA GULCH WELLS PUMP2				RA		1	
FB AIEA WELLS PUMPS 1&2 (260)				RA		1	
FB HALAWA WELLS UNITS 1&2		8/15/2023		RA		1	
Possible Hazard Identification		Sample Type (C=Comp, G=grab)		RA		1	
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		Preservation Code:		RA		1	
Deliverable Requested: I, II, III, IV, Other (specify)		Sample Time		RA		1	
Empty Kit Relinquished by		Sample Date		RA		1	
Relinquished by: <i>Byron Nishit</i>		8/15/2023		RA		1	
Relinquished by:		Sample Time		RA		1	
Relinquished by:		Sample Date		RA		1	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Sample Time		RA		1	
Custody Seal No.:		Sample Date		RA		1	
Cooler Temperature (°C) and Other Remarks: GEL-FROZEN (15A) 0.3-0.2 = 3.1 (2) 0.6-0.2 = 0.4		Sample Time		RA		1	
Cooler Temperature (°C) and Other Remarks:		Sample Date		RA		1	
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Cooler Temperature (°C) and Other Remarks:		Sample Time		RA		1	
Cool							

# Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-59480-1

**Login Number: 59480**  
**List Number: 1**  
**Creator: Elyas, Matthew**

**List Source: Eurofins Eaton Analytical Pomona**

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Samples do not require splitting or compositing.	True	
Container provided by EEA	True	