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# ANALYTICAL REPORT

## PREPARED FOR

Attn: Mr. Erwin Kawata  
City & County of Honolulu  
630 South Beretania Street  
Public Service Bldg. Room 310  
Honolulu, Hawaii 96843

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## JOB DESCRIPTION

RED-HILL  
RUSH Weekly Red Hill

## JOB NUMBER

380-72259-1

# Eurofins Eaton Analytical Pomona

## Job Notes

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

The test results in this report relate only to the samples as received by the laboratory and meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Eaton Analytical, LLC Project Manager.

## Compliance Statement

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

## Authorization



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Authorized for release by  
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# Definitions/Glossary

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

Job ID: 380-72259-1

## Qualifiers

### GC/MS Semi VOA

Qualifier	Qualifier Description
^3+	Reporting Limit Check Standard is outside acceptance limits, high biased
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### GC/MS Semi VOA TICs

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

### LCMS

Qualifier	Qualifier Description
*5+	Isotope dilution analyte is outside acceptance limits, 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.

## 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: RED-HILL

Job ID: 380-72259-1

**Job ID: 380-72259-1**

**Eurofins Eaton Analytical Pomona**

## Job Narrative 380-72259-1

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

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

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

### Receipt

The samples were received on 11/22/2023 10:50 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 0.8°C and 1.8°C

### Subcontract Work

Method 625 PAH Physis LL (EAL) + TICs: This method was subcontracted to Physis Environmental Laboratories. The subcontract laboratory certification is different from that of the facility issuing the final report. The subcontract report is appended in its entirety.

### GC/MS Semi VOA

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

### Gasoline Range Organics

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

### GC Semi VOA

Method 8015B\_DRO\_LL\_CS: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-386928. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch.

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

### PFAS

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. HALAWA WELLS UNITS 1 & 2 P1 (380-72259-4)

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

# Detection Summary

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

Job ID: 380-72259-1

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

**Lab Sample ID: 380-72259-1**

No Detections.

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

**Lab Sample ID: 380-72259-2**

No Detections.

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

**Lab Sample ID: 380-72259-3**

No Detections.

**Client Sample ID: HALAWA WELLS UNITS 1 & 2 P1**  
**PWSID Number: HI0000331**

**Lab Sample ID: 380-72259-4**

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	2.5		2.0	ng/L	1		533	Total/NA
Perfluorohexanoic acid (PFHxA)	2.0		2.0	ng/L	1		533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.3		2.0	ng/L	1		533	Total/NA
Perfluoropentanoic acid (PFPeA)	2.3		2.0	ng/L	1		533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.1		2.0	ng/L	1		537.1	Total/NA
Perfluorohexanoic acid (PFHxA)	2.1		2.0	ng/L	1		537.1	Total/NA
Perfluorooctanoic acid (PFOA)	2.1		2.0	ng/L	1		537.1	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.7		2.0	ng/L	1		537.1	Total/NA

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

**Lab Sample ID: 380-72259-5**

No Detections.

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

**Lab Sample ID: 380-72259-6**

No Detections.

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

**Lab Sample ID: 380-72259-7**

No Detections.

**Client Sample ID: TB HALAWA WELLS UNITS 1 & 2 P1**  
**PWSID Number: HI0000331**

**Lab Sample ID: 380-72259-8**

No Detections.

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

**Lab Sample ID: 380-72259-9**

No Detections.

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

**Lab Sample ID: 380-72259-10**

No Detections.

This Detection Summary does not include radiochemical test results.

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# Detection Summary

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

Job ID: 380-72259-1

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

**Lab Sample ID: 380-72259-11**

No Detections.

**Client Sample ID: FB HALAWA WELLS UNITS 1 & 2 P1**  
**PWSID Number: HI0000331**

**Lab Sample ID: 380-72259-12**

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins Eaton Analytical Pomona

# Client Sample Results

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

Job ID: 380-72259-1

**Client Sample ID: MOANALUA WELLS**

**Lab Sample ID: 380-72259-1**

Date Collected: 11/20/23 10:09

Matrix: Drinking Water

Date Received: 11/22/23 10:50

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 12:01	1
2,4'-DDD	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 12:01	1
2,4'-DDE	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 12:01	1
2,4'-DDT	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 12:01	1
2,4-Dinitrotoluene	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 12:01	1
2,6-Dinitrotoluene	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 12:01	1
2-Methylnaphthalene	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 12:01	1
4,4'-DDD	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 12:01	1
4,4'-DDE	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 12:01	1
4,4'-DDT	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 12:01	1
Acenaphthene	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 12:01	1
Acenaphthylene	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 12:01	1
Acetochlor	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 12:01	1
Alachlor	<0.050		0.050	ug/L		11/24/23 17:31	11/26/23 12:01	1
alpha-BHC	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 12:01	1
alpha-Chlordane	<0.050		0.050	ug/L		11/24/23 17:31	11/26/23 12:01	1
Anthracene	<0.020		0.020	ug/L		11/24/23 17:31	11/26/23 12:01	1
Atrazine	<0.050	F1	0.050	ug/L		11/24/23 17:31	11/26/23 12:01	1
Benz(a)anthracene	<0.050		0.050	ug/L		11/24/23 17:31	11/26/23 12:01	1
Benzo[a]pyrene	<0.020		0.020	ug/L		11/24/23 17:31	11/26/23 12:01	1
Benzo[b]fluoranthene	<0.020		0.020	ug/L		11/24/23 17:31	11/26/23 12:01	1
Benzo[g,h,i]perylene	<0.050		0.050	ug/L		11/24/23 17:31	11/26/23 12:01	1
Benzo[k]fluoranthene	<0.020		0.020	ug/L		11/24/23 17:31	11/26/23 12:01	1
beta-BHC	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 12:01	1
Bis(2-ethylhexyl) phthalate	<0.59		0.59	ug/L		11/24/23 17:31	11/26/23 12:01	1
Bromacil	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 12:01	1
Butachlor	<0.050	F1	0.050	ug/L		11/24/23 17:31	11/26/23 12:01	1
Butylbenzylphthalate	<0.50		0.50	ug/L		11/24/23 17:31	11/26/23 12:01	1
Chlorobenzilate	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 12:01	1
Chloroneb	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 12:01	1
Chlorothalonil (Draconil, Bravo)	<0.099	^3+	0.099	ug/L		11/24/23 17:31	11/26/23 12:01	1
Chlorpyrifos	<0.050		0.050	ug/L		11/24/23 17:31	11/26/23 12:01	1
Chrysene	<0.020		0.020	ug/L		11/24/23 17:31	11/26/23 12:01	1
delta-BHC	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 12:01	1
Di(2-ethylhexyl)adipate	<0.59		0.59	ug/L		11/24/23 17:31	11/26/23 12:01	1
Dibenz(a,h)anthracene	<0.050		0.050	ug/L		11/24/23 17:31	11/26/23 12:01	1
Diclorvos (DDVP)	<0.050	^3+	0.050	ug/L		11/24/23 17:31	11/26/23 12:01	1
Dieldrin	<0.20		0.20	ug/L		11/24/23 17:31	11/26/23 12:01	1
Diethylphthalate	<0.50		0.50	ug/L		11/24/23 17:31	11/26/23 12:01	1
Dimethylphthalate	<0.50		0.50	ug/L		11/24/23 17:31	11/26/23 12:01	1
Di-n-butyl phthalate	<0.99		0.99	ug/L		11/24/23 17:31	11/26/23 12:01	1
Di-n-octyl phthalate	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 12:01	1
Endosulfan I (Alpha)	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 12:01	1
Endosulfan II (Beta)	<0.099	^3+	0.099	ug/L		11/24/23 17:31	11/26/23 12:01	1
Endosulfan sulfate	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 12:01	1
Endrin	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 12:01	1
Endrin aldehyde	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 12:01	1
EPTC	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 12:01	1
Fluoranthene	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 12:01	1

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# Client Sample Results

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

Job ID: 380-72259-1

## Client Sample ID: MOANALUA WELLS

## Lab Sample ID: 380-72259-1

Date Collected: 11/20/23 10:09

Matrix: Drinking Water

Date Received: 11/22/23 10:50

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	<0.050		0.050	ug/L		11/24/23 17:31	11/26/23 12:01	1
gamma-Chlordane	<0.050		0.050	ug/L		11/24/23 17:31	11/26/23 12:01	1
Heptachlor	<0.040		0.040	ug/L		11/24/23 17:31	11/26/23 12:01	1
Heptachlor epoxide (isomer B)	<0.050		0.050	ug/L		11/24/23 17:31	11/26/23 12:01	1
Hexachlorobenzene	<0.050		0.050	ug/L		11/24/23 17:31	11/26/23 12:01	1
Hexachlorocyclopentadiene	<0.050		0.050	ug/L		11/24/23 17:31	11/26/23 12:01	1
Indeno[1,2,3-cd]pyrene	<0.050		0.050	ug/L		11/24/23 17:31	11/26/23 12:01	1
Isophorone	<0.50		0.50	ug/L		11/24/23 17:31	11/26/23 12:01	1
Lindane	<0.040		0.040	ug/L		11/24/23 17:31	11/26/23 12:01	1
Malathion	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 12:01	1
Methoxychlor	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 12:01	1
Metolachlor	<0.050		0.050	ug/L		11/24/23 17:31	11/26/23 12:01	1
Molinate	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 12:01	1
Naphthalene	<0.30		0.30	ug/L		11/24/23 17:31	11/26/23 12:01	1
Parathion	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 12:01	1
Pendimethalin (Penoxaline)	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 12:01	1
Phenanthrene	<0.040		0.040	ug/L		11/24/23 17:31	11/26/23 12:01	1
Propachlor	<0.050	^3+	0.050	ug/L		11/24/23 17:31	11/26/23 12:01	1
Pyrene	<0.050		0.050	ug/L		11/24/23 17:31	11/26/23 12:01	1
Simazine	<0.050	F1	0.050	ug/L		11/24/23 17:31	11/26/23 12:01	1
Terbacil	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 12:01	1
Terbutylazine	<0.099	F1	0.099	ug/L		11/24/23 17:31	11/26/23 12:01	1
Thiobencarb	<0.20		0.20	ug/L		11/24/23 17:31	11/26/23 12:01	1
Total Permethrin (mixed isomers)	<0.20		0.20	ug/L		11/24/23 17:31	11/26/23 12:01	1
trans-Nonachlor	<0.050		0.050	ug/L		11/24/23 17:31	11/26/23 12:01	1
Trifluralin	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 12:01	1

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Tentatively Identified Compound	None		ug/L			N/A	11/24/23 17:31	11/26/23 12:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	97		70 - 130	11/24/23 17:31	11/26/23 12:01	1
Perylene-d12	89		70 - 130	11/24/23 17:31	11/26/23 12:01	1
Triphenylphosphate	103		70 - 130	11/24/23 17:31	11/26/23 12:01	1

### Method: SW846 8015B GRO LL - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	<10		10	ug/L			11/30/23 14:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	69		38 - 134		11/30/23 14:06	1

### Method: SW846 8015B - Diesel Range Organics (DRO) (GC) Low Level

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (C10-C24)	<25		25	ug/L		11/27/23 20:53	12/14/23 15:49	1
Motor Oil Range Organics [C24-C36]	<25		25	ug/L		11/27/23 20:53	12/14/23 15:49	1
C8-C18	<25		25	ug/L		11/27/23 20:53	12/14/23 15:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Octacosane (Surr)	115		60 - 130	11/27/23 20:53	12/14/23 15:49	1

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# Client Sample Results

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

Job ID: 380-72259-1

**Client Sample ID: MOANALUA WELLS**

**Lab Sample ID: 380-72259-1**

Date Collected: 11/20/23 10:09

Matrix: Drinking Water

Date Received: 11/22/23 10:50

PWSID Number: HI0000331

**Method: SW846 8015B - Nonhalogenated Organic Compounds - Direct Injection (GC)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Ethanol	<0.10		0.10	mg/L			11/29/23 22:26	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Hexafluoro-2-propanol (Surr)	85		54 - 120				11/29/23 22:26	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		12/05/23 08:54	12/07/23 19:04	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:04	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:04	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:04	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:04	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:04	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:04	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:04	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:04	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:04	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:04	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:04	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:04	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:04	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:04	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:04	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:04	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:04	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:04	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:04	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:04	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:04	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:04	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:04	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:04	1
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	104		50 - 200			12/05/23 08:54	12/07/23 19:04	1
13C6 PFDA	107		50 - 200			12/05/23 08:54	12/07/23 19:04	1
13C5 PFHxA	106		50 - 200			12/05/23 08:54	12/07/23 19:04	1
13C4 PFHpA	106		50 - 200			12/05/23 08:54	12/07/23 19:04	1
13C8 PFOA	104		50 - 200			12/05/23 08:54	12/07/23 19:04	1
13C9 PFNA	110		50 - 200			12/05/23 08:54	12/07/23 19:04	1
13C7 PFUnA	106		50 - 200			12/05/23 08:54	12/07/23 19:04	1

Eurofins Eaton Analytical Pomona

# Client Sample Results

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

Job ID: 380-72259-1

## Client Sample ID: MOANALUA WELLS

## Lab Sample ID: 380-72259-1

Date Collected: 11/20/23 10:09

Matrix: Drinking Water

Date Received: 11/22/23 10:50

PWSID Number: HI0000331

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFDoA	107		50 - 200	12/05/23 08:54	12/07/23 19:04	1
13C4 PFBA	102		50 - 200	12/05/23 08:54	12/07/23 19:04	1
13C5 PFPeA	109		50 - 200	12/05/23 08:54	12/07/23 19:04	1
13C3 PFBS	98		50 - 200	12/05/23 08:54	12/07/23 19:04	1
13C3 PFHxS	101		50 - 200	12/05/23 08:54	12/07/23 19:04	1
13C8 PFOS	105		50 - 200	12/05/23 08:54	12/07/23 19:04	1
13C2-4:2-FTS	140		50 - 200	12/05/23 08:54	12/07/23 19:04	1
13C2-6:2-FTS	138		50 - 200	12/05/23 08:54	12/07/23 19:04	1
13C2-8:2-FTS	137		50 - 200	12/05/23 08:54	12/07/23 19:04	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		11/29/23 04:52	11/30/23 17:40	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:40	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:40	1
N-methylperfluorooctanesulfonamideacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:40	1
N-ethylperfluorooctanesulfonamideacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:40	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:40	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:40	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:40	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:40	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:40	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:40	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:40	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:40	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:40	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:40	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:40	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:40	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	109		70 - 130	11/29/23 04:52	11/30/23 17:40	1
13C2 PFHxA	107		70 - 130	11/29/23 04:52	11/30/23 17:40	1
13C2 PFDA	109		70 - 130	11/29/23 04:52	11/30/23 17:40	1
13C3-GenX	107		70 - 130	11/29/23 04:52	11/30/23 17:40	1

### Method: 625 PAH Physis LL (EAL) + TICs - EPA 625 Base/Neutral and Acid Organics i

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 22:54	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 22:54	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 22:54	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 22:54	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 22:54	1
Acenaphthene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 22:54	1
Acenaphthylene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 22:54	1

Eurofins Eaton Analytical Pomona

# Client Sample Results

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

Job ID: 380-72259-1

## Client Sample ID: MOANALUA WELLS

## Lab Sample ID: 380-72259-1

Date Collected: 11/20/23 10:09

Matrix: Drinking Water

Date Received: 11/22/23 10:50

PWSID Number: HI0000331

### Method: 625 PAH Physis LL (EAL) + TICs - EPA 625 Base/Neutral and Acid Organics i (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Anthracene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 22:54	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 22:54	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 22:54	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 22:54	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 22:54	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 22:54	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 22:54	1
Biphenyl	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 22:54	1
Chrysene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 22:54	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 22:54	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 22:54	1
Dibenzothiophene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 22:54	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		11/27/23 00:00	12/23/23 22:54	1
Fluoranthene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 22:54	1
Fluorene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 22:54	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 22:54	1
Naphthalene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 22:54	1
Perylene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 22:54	1
Phenanthrene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 22:54	1
Pyrene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 22:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	77		27 - 133	11/27/23 00:00	12/23/23 22:54	1
(d10-Phenanthrene)	96		43 - 129	11/27/23 00:00	12/23/23 22:54	1
(d12-Chrysene)	87		52 - 144	11/27/23 00:00	12/23/23 22:54	1
(d12-Perylene)	101		36 - 161	11/27/23 00:00	12/23/23 22:54	1
(d8-Naphthalene)	70		25 - 125	11/27/23 00:00	12/23/23 22:54	1

## Client Sample ID: AIEA GULCH WELLS PUMP 2

## Lab Sample ID: 380-72259-2

Date Collected: 11/20/23 11:08

Matrix: Drinking Water

Date Received: 11/22/23 10:50

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:24	1
2,4'-DDD	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:24	1
2,4'-DDE	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:24	1
2,4'-DDT	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:24	1
2,4-Dinitrotoluene	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:24	1
2,6-Dinitrotoluene	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:24	1
2-Methylnaphthalene	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:24	1
4,4'-DDD	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:24	1
4,4'-DDE	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:24	1
4,4'-DDT	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:24	1
Acenaphthene	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:24	1
Acenaphthylene	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:24	1
Acetochlor	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:24	1
Alachlor	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 13:24	1
alpha-BHC	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:24	1
alpha-Chlordane	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 13:24	1

Eurofins Eaton Analytical Pomona

# Client Sample Results

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

Job ID: 380-72259-1

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

**Lab Sample ID: 380-72259-2**

Date Collected: 11/20/23 11:08

Matrix: Drinking Water

Date Received: 11/22/23 10:50

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Anthracene	<0.020		0.020	ug/L		11/24/23 17:31	11/26/23 13:24	1
Atrazine	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 13:24	1
Benz(a)anthracene	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 13:24	1
Benzo[a]pyrene	<0.020		0.020	ug/L		11/24/23 17:31	11/26/23 13:24	1
Benzo[b]fluoranthene	<0.020		0.020	ug/L		11/24/23 17:31	11/26/23 13:24	1
Benzo[g,h,i]perylene	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 13:24	1
Benzo[k]fluoranthene	<0.020		0.020	ug/L		11/24/23 17:31	11/26/23 13:24	1
beta-BHC	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:24	1
Bis(2-ethylhexyl) phthalate	<0.59		0.59	ug/L		11/24/23 17:31	11/26/23 13:24	1
Bromacil	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:24	1
Butachlor	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 13:24	1
Butylbenzylphthalate	<0.49		0.49	ug/L		11/24/23 17:31	11/26/23 13:24	1
Chlorobenzilate	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:24	1
Chloroneb	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:24	1
Chlorothalonil (Draconil, Bravo)	<0.099	^3+	0.099	ug/L		11/24/23 17:31	11/26/23 13:24	1
Chlorpyrifos	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 13:24	1
Chrysene	<0.020		0.020	ug/L		11/24/23 17:31	11/26/23 13:24	1
delta-BHC	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:24	1
Di(2-ethylhexyl)adipate	<0.59		0.59	ug/L		11/24/23 17:31	11/26/23 13:24	1
Dibenz(a,h)anthracene	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 13:24	1
Diclorvos (DDVP)	<0.049	^3+	0.049	ug/L		11/24/23 17:31	11/26/23 13:24	1
Dieldrin	<0.20		0.20	ug/L		11/24/23 17:31	11/26/23 13:24	1
Diethylphthalate	<0.49		0.49	ug/L		11/24/23 17:31	11/26/23 13:24	1
Dimethylphthalate	<0.49		0.49	ug/L		11/24/23 17:31	11/26/23 13:24	1
Di-n-butyl phthalate	<0.99		0.99	ug/L		11/24/23 17:31	11/26/23 13:24	1
Di-n-octyl phthalate	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:24	1
Endosulfan I (Alpha)	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:24	1
Endosulfan II (Beta)	<0.099	^3+	0.099	ug/L		11/24/23 17:31	11/26/23 13:24	1
Endosulfan sulfate	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:24	1
Endrin	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:24	1
Endrin aldehyde	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:24	1
EPTC	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:24	1
Fluoranthene	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:24	1
Fluorene	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 13:24	1
gamma-Chlordane	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 13:24	1
Heptachlor	<0.039		0.039	ug/L		11/24/23 17:31	11/26/23 13:24	1
Heptachlor epoxide (isomer B)	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 13:24	1
Hexachlorobenzene	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 13:24	1
Hexachlorocyclopentadiene	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 13:24	1
Indeno[1,2,3-cd]pyrene	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 13:24	1
Isophorone	<0.49		0.49	ug/L		11/24/23 17:31	11/26/23 13:24	1
Lindane	<0.039		0.039	ug/L		11/24/23 17:31	11/26/23 13:24	1
Malathion	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:24	1
Methoxychlor	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:24	1
Metolachlor	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 13:24	1
Molinate	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:24	1
Naphthalene	<0.30		0.30	ug/L		11/24/23 17:31	11/26/23 13:24	1
Parathion	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:24	1
Pendimethalin (Penoxaline)	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:24	1

Eurofins Eaton Analytical Pomona

# Client Sample Results

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

Job ID: 380-72259-1

## Client Sample ID: AIEA GULCH WELLS PUMP 2

## Lab Sample ID: 380-72259-2

Date Collected: 11/20/23 11:08

Matrix: Drinking Water

Date Received: 11/22/23 10:50

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Phenanthrene	<0.039		0.039	ug/L		11/24/23 17:31	11/26/23 13:24	1
Propachlor	<0.049	^3+	0.049	ug/L		11/24/23 17:31	11/26/23 13:24	1
Pyrene	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 13:24	1
Simazine	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 13:24	1
Terbacil	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:24	1
Terbutylazine	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:24	1
Thiobencarb	<0.20		0.20	ug/L		11/24/23 17:31	11/26/23 13:24	1
Total Permethrin (mixed isomers)	<0.20		0.20	ug/L		11/24/23 17:31	11/26/23 13:24	1
trans-Nonachlor	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 13:24	1
Trifluralin	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:24	1

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Tentatively Identified Compound	None		ug/L			N/A	11/24/23 17:31	11/26/23 13:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	97		70 - 130	11/24/23 17:31	11/26/23 13:24	1
Perylene-d12	92		70 - 130	11/24/23 17:31	11/26/23 13:24	1
Triphenylphosphate	101		70 - 130	11/24/23 17:31	11/26/23 13:24	1

### Method: SW846 8015B GRO LL - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	<10		10	ug/L			11/30/23 14:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		38 - 134		11/30/23 14:32	1

### Method: SW846 8015B - Diesel Range Organics (DRO) (GC) Low Level

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (C10-C24)	<25		25	ug/L		11/27/23 20:53	12/14/23 16:10	1
Motor Oil Range Organics [C24-C36]	<25		25	ug/L		11/27/23 20:53	12/14/23 16:10	1
C8-C18	<25		25	ug/L		11/27/23 20:53	12/14/23 16:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Octacosane (Surr)	111		60 - 130	11/27/23 20:53	12/14/23 16:10	1

### Method: SW846 8015B - Nonhalogenated Organic Compounds - Direct Injection (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Ethanol	<0.10		0.10	mg/L			11/29/23 22:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Hexafluoro-2-propanol (Surr)	86		54 - 120		11/29/23 22:47	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		12/05/23 08:54	12/07/23 19:14	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:14	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:14	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:14	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:14	1

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# Client Sample Results

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

Job ID: 380-72259-1

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

**Lab Sample ID: 380-72259-2**

Date Collected: 11/20/23 11:08

Matrix: Drinking Water

Date Received: 11/22/23 10:50

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:14	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:14	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:14	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:14	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:14	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:14	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:14	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:14	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:14	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:14	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:14	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:14	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:14	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:14	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:14	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:14	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:14	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:14	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:14	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:14	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	94		50 - 200	12/05/23 08:54	12/07/23 19:14	1
13C6 PFDA	107		50 - 200	12/05/23 08:54	12/07/23 19:14	1
13C5 PFHxA	104		50 - 200	12/05/23 08:54	12/07/23 19:14	1
13C4 PFHpA	106		50 - 200	12/05/23 08:54	12/07/23 19:14	1
13C8 PFOA	104		50 - 200	12/05/23 08:54	12/07/23 19:14	1
13C9 PFNA	101		50 - 200	12/05/23 08:54	12/07/23 19:14	1
13C7 PFUnA	99		50 - 200	12/05/23 08:54	12/07/23 19:14	1
13C2 PFDoA	103		50 - 200	12/05/23 08:54	12/07/23 19:14	1
13C4 PFBA	104		50 - 200	12/05/23 08:54	12/07/23 19:14	1
13C5 PFPeA	111		50 - 200	12/05/23 08:54	12/07/23 19:14	1
13C3 PFBS	97		50 - 200	12/05/23 08:54	12/07/23 19:14	1
13C3 PFHxS	104		50 - 200	12/05/23 08:54	12/07/23 19:14	1
13C8 PFOS	103		50 - 200	12/05/23 08:54	12/07/23 19:14	1
13C2-4:2-FTS	135		50 - 200	12/05/23 08:54	12/07/23 19:14	1
13C2-6:2-FTS	122		50 - 200	12/05/23 08:54	12/07/23 19:14	1
13C2-8:2-FTS	146		50 - 200	12/05/23 08:54	12/07/23 19:14	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		11/29/23 04:52	11/30/23 17:49	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:49	1

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# Client Sample Results

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

Job ID: 380-72259-1

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

**Lab Sample ID: 380-72259-2**

Date Collected: 11/20/23 11:08

Matrix: Drinking Water

Date Received: 11/22/23 10:50

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:49	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:49	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:49	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:49	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:49	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:49	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:49	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:49	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:49	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:49	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:49	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:49	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:49	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:49	1
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:49	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	108		70 - 130	11/29/23 04:52	11/30/23 17:49	1
13C2 PFHxA	109		70 - 130	11/29/23 04:52	11/30/23 17:49	1
13C2 PFDA	109		70 - 130	11/29/23 04:52	11/30/23 17:49	1
13C3-GenX	103		70 - 130	11/29/23 04:52	11/30/23 17:49	1

**Method: 625 PAH Physis LL (EAL) + TICs - EPA 625 Base/Neutral and Acid Organics I**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 00:38	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 00:38	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 00:38	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 00:38	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 00:38	1
Acenaphthene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 00:38	1
Acenaphthylene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 00:38	1
Anthracene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 00:38	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 00:38	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 00:38	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 00:38	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 00:38	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 00:38	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 00:38	1
Biphenyl	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 00:38	1
Chrysene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 00:38	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 00:38	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 00:38	1
Dibenzothiophene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 00:38	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		11/27/23 00:00	12/24/23 00:38	1
Fluoranthene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 00:38	1

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# Client Sample Results

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

Job ID: 380-72259-1

## Client Sample ID: AIEA GULCH WELLS PUMP 2

## Lab Sample ID: 380-72259-2

Date Collected: 11/20/23 11:08

Matrix: Drinking Water

Date Received: 11/22/23 10:50

PWSID Number: HI0000331

### Method: 625 PAH Physis LL (EAL) + TICs - EPA 625 Base/Neutral and Acid Organics i (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 00:38	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 00:38	1
Naphthalene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 00:38	1
Perylene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 00:38	1
Phenanthrene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 00:38	1
Pyrene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 00:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	77		27 - 133	11/27/23 00:00	12/24/23 00:38	1
(d10-Phenanthrene)	90		43 - 129	11/27/23 00:00	12/24/23 00:38	1
(d12-Chrysene)	82		52 - 144	11/27/23 00:00	12/24/23 00:38	1
(d12-Perylene)	103		36 - 161	11/27/23 00:00	12/24/23 00:38	1
(d8-Naphthalene)	74		25 - 125	11/27/23 00:00	12/24/23 00:38	1

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

## Lab Sample ID: 380-72259-3

Date Collected: 11/20/23 11:35

Matrix: Drinking Water

Date Received: 11/22/23 10:50

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:44	1
2,4'-DDD	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:44	1
2,4'-DDE	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:44	1
2,4'-DDT	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:44	1
2,4-Dinitrotoluene	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:44	1
2,6-Dinitrotoluene	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:44	1
2-Methylnaphthalene	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:44	1
4,4'-DDD	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:44	1
4,4'-DDE	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:44	1
4,4'-DDT	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:44	1
Acenaphthene	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:44	1
Acenaphthylene	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:44	1
Acetochlor	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:44	1
Alachlor	<0.050		0.050	ug/L		11/24/23 17:31	11/26/23 13:44	1
alpha-BHC	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:44	1
alpha-Chlordane	<0.050		0.050	ug/L		11/24/23 17:31	11/26/23 13:44	1
Anthracene	<0.020		0.020	ug/L		11/24/23 17:31	11/26/23 13:44	1
Atrazine	<0.050		0.050	ug/L		11/24/23 17:31	11/26/23 13:44	1
Benz(a)anthracene	<0.050		0.050	ug/L		11/24/23 17:31	11/26/23 13:44	1
Benzo[a]pyrene	<0.020		0.020	ug/L		11/24/23 17:31	11/26/23 13:44	1
Benzo[b]fluoranthene	<0.020		0.020	ug/L		11/24/23 17:31	11/26/23 13:44	1
Benzo[g,h,i]perylene	<0.050		0.050	ug/L		11/24/23 17:31	11/26/23 13:44	1
Benzo[k]fluoranthene	<0.020		0.020	ug/L		11/24/23 17:31	11/26/23 13:44	1
beta-BHC	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:44	1
Bis(2-ethylhexyl) phtalate	<0.59		0.59	ug/L		11/24/23 17:31	11/26/23 13:44	1
Bromacil	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:44	1
Butachlor	<0.050		0.050	ug/L		11/24/23 17:31	11/26/23 13:44	1
Butylbenzylphthalate	<0.50		0.50	ug/L		11/24/23 17:31	11/26/23 13:44	1
Chlorobenzilate	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:44	1
Chloroneb	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:44	1

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# Client Sample Results

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

Job ID: 380-72259-1

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

**Lab Sample ID: 380-72259-3**

Date Collected: 11/20/23 11:35

Matrix: Drinking Water

Date Received: 11/22/23 10:50

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorothalonil (Draconil, Bravo)	<0.099	^3+	0.099	ug/L		11/24/23 17:31	11/26/23 13:44	1
Chlorpyrifos	<0.050		0.050	ug/L		11/24/23 17:31	11/26/23 13:44	1
Chrysene	<0.020		0.020	ug/L		11/24/23 17:31	11/26/23 13:44	1
delta-BHC	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:44	1
Di(2-ethylhexyl)adipate	<0.59		0.59	ug/L		11/24/23 17:31	11/26/23 13:44	1
Dibenz(a,h)anthracene	<0.050		0.050	ug/L		11/24/23 17:31	11/26/23 13:44	1
Diclorvos (DDVP)	<0.050	^3+	0.050	ug/L		11/24/23 17:31	11/26/23 13:44	1
Dieldrin	<0.20		0.20	ug/L		11/24/23 17:31	11/26/23 13:44	1
Diethylphthalate	<0.50		0.50	ug/L		11/24/23 17:31	11/26/23 13:44	1
Dimethylphthalate	<0.50		0.50	ug/L		11/24/23 17:31	11/26/23 13:44	1
Di-n-butyl phthalate	<0.99		0.99	ug/L		11/24/23 17:31	11/26/23 13:44	1
Di-n-octyl phthalate	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:44	1
Endosulfan I (Alpha)	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:44	1
Endosulfan II (Beta)	<0.099	^3+	0.099	ug/L		11/24/23 17:31	11/26/23 13:44	1
Endosulfan sulfate	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:44	1
Endrin	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:44	1
Endrin aldehyde	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:44	1
EPTC	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:44	1
Fluoranthene	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:44	1
Fluorene	<0.050		0.050	ug/L		11/24/23 17:31	11/26/23 13:44	1
gamma-Chlordane	<0.050		0.050	ug/L		11/24/23 17:31	11/26/23 13:44	1
Heptachlor	<0.040		0.040	ug/L		11/24/23 17:31	11/26/23 13:44	1
Heptachlor epoxide (isomer B)	<0.050		0.050	ug/L		11/24/23 17:31	11/26/23 13:44	1
Hexachlorobenzene	<0.050		0.050	ug/L		11/24/23 17:31	11/26/23 13:44	1
Hexachlorocyclopentadiene	<0.050		0.050	ug/L		11/24/23 17:31	11/26/23 13:44	1
Indeno[1,2,3-cd]pyrene	<0.050		0.050	ug/L		11/24/23 17:31	11/26/23 13:44	1
Isophorone	<0.50		0.50	ug/L		11/24/23 17:31	11/26/23 13:44	1
Lindane	<0.040		0.040	ug/L		11/24/23 17:31	11/26/23 13:44	1
Malathion	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:44	1
Methoxychlor	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:44	1
Metolachlor	<0.050		0.050	ug/L		11/24/23 17:31	11/26/23 13:44	1
Molinate	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:44	1
Naphthalene	<0.30		0.30	ug/L		11/24/23 17:31	11/26/23 13:44	1
Parathion	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:44	1
Pendimethalin (Penoxaline)	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:44	1
Phenanthrene	<0.040		0.040	ug/L		11/24/23 17:31	11/26/23 13:44	1
Propachlor	<0.050	^3+	0.050	ug/L		11/24/23 17:31	11/26/23 13:44	1
Pyrene	<0.050		0.050	ug/L		11/24/23 17:31	11/26/23 13:44	1
Simazine	<0.050		0.050	ug/L		11/24/23 17:31	11/26/23 13:44	1
Terbacil	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:44	1
Terbutylazine	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:44	1
Thiobencarb	<0.20		0.20	ug/L		11/24/23 17:31	11/26/23 13:44	1
Total Permethrin (mixed isomers)	<0.20		0.20	ug/L		11/24/23 17:31	11/26/23 13:44	1
trans-Nonachlor	<0.050		0.050	ug/L		11/24/23 17:31	11/26/23 13:44	1
Trifluralin	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 13:44	1

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Tentatively Identified Compound	None		ug/L			N/A	11/24/23 17:31	11/26/23 13:44	1

# Client Sample Results

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

Job ID: 380-72259-1

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

**Lab Sample ID: 380-72259-3**

**Date Collected: 11/20/23 11:35**

**Matrix: Drinking Water**

**Date Received: 11/22/23 10:50**

**PWSID Number: HI0000331**

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	98		70 - 130	11/24/23 17:31	11/26/23 13:44	1
Perylene-d12	90		70 - 130	11/24/23 17:31	11/26/23 13:44	1
Triphenylphosphate	102		70 - 130	11/24/23 17:31	11/26/23 13:44	1

**Method: SW846 8015B GRO LL - Gasoline Range Organics - (GC)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	<10		10	ug/L			11/30/23 14:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		38 - 134		11/30/23 14:58	1

**Method: SW846 8015B - Diesel Range Organics (DRO) (GC) Low Level**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (C10-C24)	<25		25	ug/L		11/27/23 20:53	12/14/23 16:30	1
Motor Oil Range Organics [C24-C36]	<25		25	ug/L		11/27/23 20:53	12/14/23 16:30	1
C8-C18	<25		25	ug/L		11/27/23 20:53	12/14/23 16:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Octacosane (Surr)	103		60 - 130	11/27/23 20:53	12/14/23 16:30	1

**Method: SW846 8015B - Nonhalogenated Organic Compounds - Direct Injection (GC)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Ethanol	<0.10		0.10	mg/L			11/29/23 23:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Hexafluoro-2-propanol (Surr)	90		54 - 120		11/29/23 23:09	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafuoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		12/10/23 14:20	12/12/23 02:29	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		12/10/23 14:20	12/12/23 02:29	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		12/10/23 14:20	12/12/23 02:29	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		12/10/23 14:20	12/12/23 02:29	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		12/10/23 14:20	12/12/23 02:29	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		12/10/23 14:20	12/12/23 02:29	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		12/10/23 14:20	12/12/23 02:29	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		12/10/23 14:20	12/12/23 02:29	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		12/10/23 14:20	12/12/23 02:29	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		12/10/23 14:20	12/12/23 02:29	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		12/10/23 14:20	12/12/23 02:29	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		12/10/23 14:20	12/12/23 02:29	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		12/10/23 14:20	12/12/23 02:29	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		12/10/23 14:20	12/12/23 02:29	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		12/10/23 14:20	12/12/23 02:29	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		12/10/23 14:20	12/12/23 02:29	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		12/10/23 14:20	12/12/23 02:29	1

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# Client Sample Results

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

Job ID: 380-72259-1

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

**Lab Sample ID: 380-72259-3**

**Date Collected: 11/20/23 11:35**

**Matrix: Drinking Water**

**Date Received: 11/22/23 10:50**

**PWSID Number: HI0000331**

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		12/10/23 14:20	12/12/23 02:29	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		12/10/23 14:20	12/12/23 02:29	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		2.0	ng/L		12/10/23 14:20	12/12/23 02:29	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		12/10/23 14:20	12/12/23 02:29	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		12/10/23 14:20	12/12/23 02:29	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		12/10/23 14:20	12/12/23 02:29	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		12/10/23 14:20	12/12/23 02:29	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		12/10/23 14:20	12/12/23 02:29	1
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	70		50 - 200			12/10/23 14:20	12/12/23 02:29	1
13C6 PFDA	104		50 - 200			12/10/23 14:20	12/12/23 02:29	1
13C5 PFHxA	80		50 - 200			12/10/23 14:20	12/12/23 02:29	1
13C4 PFHpA	91		50 - 200			12/10/23 14:20	12/12/23 02:29	1
13C8 PFOA	93		50 - 200			12/10/23 14:20	12/12/23 02:29	1
13C9 PFNA	101		50 - 200			12/10/23 14:20	12/12/23 02:29	1
13C7 PFUnA	103		50 - 200			12/10/23 14:20	12/12/23 02:29	1
13C2 PFDoA	103		50 - 200			12/10/23 14:20	12/12/23 02:29	1
13C4 PFBA	76		50 - 200			12/10/23 14:20	12/12/23 02:29	1
13C5 PFPeA	83		50 - 200			12/10/23 14:20	12/12/23 02:29	1
13C3 PFBS	95		50 - 200			12/10/23 14:20	12/12/23 02:29	1
13C3 PFHxS	100		50 - 200			12/10/23 14:20	12/12/23 02:29	1
13C8 PFOS	103		50 - 200			12/10/23 14:20	12/12/23 02:29	1
13C2-4:2-FTS	118		50 - 200			12/10/23 14:20	12/12/23 02:29	1
13C2-6:2-FTS	116		50 - 200			12/10/23 14:20	12/12/23 02:29	1
13C2-8:2-FTS	139		50 - 200			12/10/23 14:20	12/12/23 02:29	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		11/29/23 04:52	11/30/23 17:59	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:59	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:59	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:59	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:59	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:59	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:59	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:59	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:59	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:59	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:59	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:59	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:59	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:59	1

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# Client Sample Results

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

Job ID: 380-72259-1

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

**Lab Sample ID: 380-72259-3**

Date Collected: 11/20/23 11:35

Matrix: Drinking Water

Date Received: 11/22/23 10:50

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:59	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:59	1
11-Chloroeicosfluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:59	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 17:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	104		70 - 130	11/29/23 04:52	11/30/23 17:59	1
13C2 PFHxA	107		70 - 130	11/29/23 04:52	11/30/23 17:59	1
13C2 PFDA	110		70 - 130	11/29/23 04:52	11/30/23 17:59	1
13C3-GenX	111		70 - 130	11/29/23 04:52	11/30/23 17:59	1

**Method: 625 PAH Physis LL (EAL) + TICs - EPA 625 Base/Neutral and Acid Organics i**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 02:22	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 02:22	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 02:22	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 02:22	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 02:22	1
Acenaphthene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 02:22	1
Acenaphthylene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 02:22	1
Anthracene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 02:22	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 02:22	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 02:22	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 02:22	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 02:22	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 02:22	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 02:22	1
Biphenyl	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 02:22	1
Chrysene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 02:22	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 02:22	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 02:22	1
Dibenzothiophene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 02:22	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		11/27/23 00:00	12/24/23 02:22	1
Fluoranthene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 02:22	1
Fluorene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 02:22	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 02:22	1
Naphthalene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 02:22	1
Perylene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 02:22	1
Phenanthrene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 02:22	1
Pyrene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 02:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	61		27 - 133	11/27/23 00:00	12/24/23 02:22	1
(d10-Phenanthrene)	67		43 - 129	11/27/23 00:00	12/24/23 02:22	1
(d12-Chrysene)	83		52 - 144	11/27/23 00:00	12/24/23 02:22	1
(d12-Perylene)	96		36 - 161	11/27/23 00:00	12/24/23 02:22	1
(d8-Naphthalene)	59		25 - 125	11/27/23 00:00	12/24/23 02:22	1

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# Client Sample Results

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

Job ID: 380-72259-1

**Client Sample ID: HALAWA WELLS UNITS 1 & 2 P1**

**Lab Sample ID: 380-72259-4**

Date Collected: 11/20/23 10:40

Matrix: Drinking Water

Date Received: 11/22/23 10:50

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 14:05	1
2,4'-DDD	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 14:05	1
2,4'-DDE	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 14:05	1
2,4'-DDT	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 14:05	1
2,4-Dinitrotoluene	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 14:05	1
2,6-Dinitrotoluene	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 14:05	1
2-Methylnaphthalene	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 14:05	1
4,4'-DDD	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 14:05	1
4,4'-DDE	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 14:05	1
4,4'-DDT	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 14:05	1
Acenaphthene	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 14:05	1
Acenaphthylene	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 14:05	1
Acetochlor	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 14:05	1
Alachlor	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 14:05	1
alpha-BHC	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 14:05	1
alpha-Chlordane	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 14:05	1
Anthracene	<0.020		0.020	ug/L		11/24/23 17:31	11/26/23 14:05	1
Atrazine	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 14:05	1
Benz(a)anthracene	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 14:05	1
Benzo[a]pyrene	<0.020		0.020	ug/L		11/24/23 17:31	11/26/23 14:05	1
Benzo[b]fluoranthene	<0.020		0.020	ug/L		11/24/23 17:31	11/26/23 14:05	1
Benzo[g,h,i]perylene	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 14:05	1
Benzo[k]fluoranthene	<0.020		0.020	ug/L		11/24/23 17:31	11/26/23 14:05	1
beta-BHC	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 14:05	1
Bis(2-ethylhexyl) phthalate	<0.59		0.59	ug/L		11/24/23 17:31	11/26/23 14:05	1
Bromacil	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 14:05	1
Butachlor	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 14:05	1
Butylbenzylphthalate	<0.49		0.49	ug/L		11/24/23 17:31	11/26/23 14:05	1
Chlorobenzilate	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 14:05	1
Chloroneb	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 14:05	1
Chlorothalonil (Draconil, Bravo)	<0.099	^3+	0.099	ug/L		11/24/23 17:31	11/26/23 14:05	1
Chlorpyrifos	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 14:05	1
Chrysene	<0.020		0.020	ug/L		11/24/23 17:31	11/26/23 14:05	1
delta-BHC	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 14:05	1
Di(2-ethylhexyl)adipate	<0.59		0.59	ug/L		11/24/23 17:31	11/26/23 14:05	1
Dibenz(a,h)anthracene	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 14:05	1
Diclorvos (DDVP)	<0.049	^3+	0.049	ug/L		11/24/23 17:31	11/26/23 14:05	1
Dieldrin	<0.20		0.20	ug/L		11/24/23 17:31	11/26/23 14:05	1
Diethylphthalate	<0.49		0.49	ug/L		11/24/23 17:31	11/26/23 14:05	1
Dimethylphthalate	<0.49		0.49	ug/L		11/24/23 17:31	11/26/23 14:05	1
Di-n-butyl phthalate	<0.99		0.99	ug/L		11/24/23 17:31	11/26/23 14:05	1
Di-n-octyl phthalate	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 14:05	1
Endosulfan I (Alpha)	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 14:05	1
Endosulfan II (Beta)	<0.099	^3+	0.099	ug/L		11/24/23 17:31	11/26/23 14:05	1
Endosulfan sulfate	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 14:05	1
Endrin	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 14:05	1
Endrin aldehyde	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 14:05	1
EPTC	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 14:05	1
Fluoranthene	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 14:05	1

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# Client Sample Results

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

Job ID: 380-72259-1

**Client Sample ID: HALAWA WELLS UNITS 1 & 2 P1**

**Lab Sample ID: 380-72259-4**

Date Collected: 11/20/23 10:40

Matrix: Drinking Water

Date Received: 11/22/23 10:50

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 14:05	1
gamma-Chlordane	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 14:05	1
Heptachlor	<0.039		0.039	ug/L		11/24/23 17:31	11/26/23 14:05	1
Heptachlor epoxide (isomer B)	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 14:05	1
Hexachlorobenzene	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 14:05	1
Hexachlorocyclopentadiene	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 14:05	1
Indeno[1,2,3-cd]pyrene	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 14:05	1
Isophorone	<0.49		0.49	ug/L		11/24/23 17:31	11/26/23 14:05	1
Lindane	<0.039		0.039	ug/L		11/24/23 17:31	11/26/23 14:05	1
Malathion	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 14:05	1
Methoxychlor	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 14:05	1
Metolachlor	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 14:05	1
Molinate	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 14:05	1
Naphthalene	<0.30		0.30	ug/L		11/24/23 17:31	11/26/23 14:05	1
Parathion	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 14:05	1
Pendimethalin (Penoxaline)	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 14:05	1
Phenanthrene	<0.039		0.039	ug/L		11/24/23 17:31	11/26/23 14:05	1
Propachlor	<0.049	^3+	0.049	ug/L		11/24/23 17:31	11/26/23 14:05	1
Pyrene	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 14:05	1
Simazine	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 14:05	1
Terbacil	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 14:05	1
Terbutylazine	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 14:05	1
Thiobencarb	<0.20		0.20	ug/L		11/24/23 17:31	11/26/23 14:05	1
Total Permethrin (mixed isomers)	<0.20		0.20	ug/L		11/24/23 17:31	11/26/23 14:05	1
trans-Nonachlor	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 14:05	1
Trifluralin	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 14:05	1

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Tentatively Identified Compound	None		ug/L			N/A	11/24/23 17:31	11/26/23 14:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	96		70 - 130	11/24/23 17:31	11/26/23 14:05	1
Perylene-d12	91		70 - 130	11/24/23 17:31	11/26/23 14:05	1
Triphenylphosphate	103		70 - 130	11/24/23 17:31	11/26/23 14:05	1

**Method: SW846 8015B GRO LL - Gasoline Range Organics - (GC)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	<10		10	ug/L			11/30/23 15:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		38 - 134		11/30/23 15:24	1

**Method: SW846 8015B - Diesel Range Organics (DRO) (GC) Low Level**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (C10-C24)	<25		25	ug/L		11/27/23 20:53	12/14/23 16:51	1
Motor Oil Range Organics [C24-C36]	<25		25	ug/L		11/27/23 20:53	12/14/23 16:51	1
C8-C18	<25		25	ug/L		11/27/23 20:53	12/14/23 16:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Octacosane (Surr)	113		60 - 130	11/27/23 20:53	12/14/23 16:51	1

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# Client Sample Results

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

Job ID: 380-72259-1

**Client Sample ID: HALAWA WELLS UNITS 1 & 2 P1**

**Lab Sample ID: 380-72259-4**

Date Collected: 11/20/23 10:40

Matrix: Drinking Water

Date Received: 11/22/23 10:50

PWSID Number: HI0000331

**Method: SW846 8015B - Nonhalogenated Organic Compounds - Direct Injection (GC)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Ethanol	<0.10		0.10	mg/L			11/29/23 23:31	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Hexafluoro-2-propanol (Surr)	88		54 - 120				11/29/23 23:31	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafuoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:33	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:33	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:33	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:33	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:33	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:33	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:33	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:33	1
<b>Perfluorohexanesulfonic acid (PFHxS)</b>	<b>2.5</b>		2.0	ng/L		12/05/23 08:54	12/07/23 19:33	1
<b>Perfluorohexanoic acid (PFHxA)</b>	<b>2.0</b>		2.0	ng/L		12/05/23 08:54	12/07/23 19:33	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:33	1
<b>Perfluorooctanesulfonic acid (PFOS)</b>	<b>2.3</b>		2.0	ng/L		12/05/23 08:54	12/07/23 19:33	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:33	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:33	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:33	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:33	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:33	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:33	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:33	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:33	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:33	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:33	1
<b>Perfluoropentanoic acid (PFPeA)</b>	<b>2.3</b>		2.0	ng/L		12/05/23 08:54	12/07/23 19:33	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:33	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:33	1
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	87		50 - 200			12/05/23 08:54	12/07/23 19:33	1
13C6 PFDA	104		50 - 200			12/05/23 08:54	12/07/23 19:33	1
13C5 PFHxA	92		50 - 200			12/05/23 08:54	12/07/23 19:33	1
13C4 PFHpA	93		50 - 200			12/05/23 08:54	12/07/23 19:33	1
13C8 PFOA	97		50 - 200			12/05/23 08:54	12/07/23 19:33	1

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# Client Sample Results

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

Job ID: 380-72259-1

**Client Sample ID: HALAWA WELLS UNITS 1 & 2 P1**

**Lab Sample ID: 380-72259-4**

Date Collected: 11/20/23 10:40

Matrix: Drinking Water

Date Received: 11/22/23 10:50

PWSID Number: HI0000331

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C9 PFNA	98		50 - 200	12/05/23 08:54	12/07/23 19:33	1
13C7 PFUnA	100		50 - 200	12/05/23 08:54	12/07/23 19:33	1
13C2 PFDoA	99		50 - 200	12/05/23 08:54	12/07/23 19:33	1
13C4 PFBA	93		50 - 200	12/05/23 08:54	12/07/23 19:33	1
13C5 PFPeA	98		50 - 200	12/05/23 08:54	12/07/23 19:33	1
13C3 PFBS	97		50 - 200	12/05/23 08:54	12/07/23 19:33	1
13C3 PFHxS	101		50 - 200	12/05/23 08:54	12/07/23 19:33	1
13C8 PFOS	102		50 - 200	12/05/23 08:54	12/07/23 19:33	1
13C2-4:2-FTS	139		50 - 200	12/05/23 08:54	12/07/23 19:33	1
13C2-6:2-FTS	132		50 - 200	12/05/23 08:54	12/07/23 19:33	1
13C2-8:2-FTS	172		50 - 200	12/05/23 08:54	12/07/23 19:33	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		11/29/23 04:52	11/30/23 18:09	1
<b>Perfluorooctanesulfonic acid (PFOS)</b>	<b>2.1</b>		2.0	ng/L		11/29/23 04:52	11/30/23 18:09	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:09	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:09	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:09	1
<b>Perfluorohexanoic acid (PFHxA)</b>	<b>2.1</b>		2.0	ng/L		11/29/23 04:52	11/30/23 18:09	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:09	1
<b>Perfluorooctanoic acid (PFOA)</b>	<b>2.1</b>		2.0	ng/L		11/29/23 04:52	11/30/23 18:09	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:09	1
<b>Perfluorohexanesulfonic acid (PFHxS)</b>	<b>2.7</b>		2.0	ng/L		11/29/23 04:52	11/30/23 18:09	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:09	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:09	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:09	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:09	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:09	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:09	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:09	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	104		70 - 130	11/29/23 04:52	11/30/23 18:09	1
13C2 PFHxA	110		70 - 130	11/29/23 04:52	11/30/23 18:09	1
13C2 PFDA	114		70 - 130	11/29/23 04:52	11/30/23 18:09	1
13C3-GenX	115		70 - 130	11/29/23 04:52	11/30/23 18:09	1

**Method: 625 PAH Physis LL (EAL) + TICs - EPA 625 Base/Neutral and Acid Organics i**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 04:07	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 04:07	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 04:07	1

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# Client Sample Results

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

Job ID: 380-72259-1

## Client Sample ID: HALAWA WELLS UNITS 1 & 2 P1

## Lab Sample ID: 380-72259-4

Date Collected: 11/20/23 10:40

Matrix: Drinking Water

Date Received: 11/22/23 10:50

PWSID Number: HI0000331

### Method: 625 PAH Physis LL (EAL) + TICs - EPA 625 Base/Neutral and Acid Organics i (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 04:07	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 04:07	1
Acenaphthene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 04:07	1
Acenaphthylene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 04:07	1
Anthracene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 04:07	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 04:07	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 04:07	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 04:07	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 04:07	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 04:07	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 04:07	1
Biphenyl	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 04:07	1
Chrysene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 04:07	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 04:07	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 04:07	1
Dibenzothiophene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 04:07	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		11/27/23 00:00	12/24/23 04:07	1
Fluoranthene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 04:07	1
Fluorene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 04:07	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 04:07	1
Naphthalene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 04:07	1
Perylene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 04:07	1
Phenanthrene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 04:07	1
Pyrene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/24/23 04:07	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	47		27 - 133				11/27/23 00:00	12/24/23 04:07	1
(d10-Phenanthrene)	53		43 - 129				11/27/23 00:00	12/24/23 04:07	1
(d12-Chrysene)	78		52 - 144				11/27/23 00:00	12/24/23 04:07	1
(d12-Perylene)	85		36 - 161				11/27/23 00:00	12/24/23 04:07	1
(d8-Naphthalene)	50		25 - 125				11/27/23 00:00	12/24/23 04:07	1

## Client Sample ID: TB MOANALUA WELLS

## Lab Sample ID: 380-72259-5

Date Collected: 11/20/23 10:09

Matrix: Water

Date Received: 11/22/23 10:50

PWSID Number: HI0000331

### Method: SW846 8015B GRO LL - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
GRO (C6-C10)	<10		10	ug/L			11/30/23 12:21	1	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		38 - 134				11/30/23 12:21	1	

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

## Lab Sample ID: 380-72259-6

Date Collected: 11/20/23 11:08

Matrix: Water

Date Received: 11/22/23 10:50

PWSID Number: HI0000331

### Method: SW846 8015B GRO LL - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	<10		10	ug/L			11/30/23 12:47	1

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# Client Sample Results

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

Job ID: 380-72259-1

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

Lab Sample ID: 380-72259-6

Date Collected: 11/20/23 11:08

Matrix: Water

Date Received: 11/22/23 10:50

PWSID Number: HI0000331

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	86		38 - 134		11/30/23 12:47	1

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

Lab Sample ID: 380-72259-7

Date Collected: 11/20/23 11:35

Matrix: Water

Date Received: 11/22/23 10:50

PWSID Number: HI0000331

### Method: SW846 8015B GRO LL - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	<10		10	ug/L			11/30/23 13:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		38 - 134		11/30/23 13:13	1

## Client Sample ID: TB HALAWA WELLS UNITS 1 & 2 P1

Lab Sample ID: 380-72259-8

Date Collected: 11/20/23 10:40

Matrix: Water

Date Received: 11/22/23 10:50

PWSID Number: HI0000331

### Method: SW846 8015B GRO LL - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	<10		10	ug/L			11/30/23 13:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	89		38 - 134		11/30/23 13:40	1

## Client Sample ID: FB MOANALUA WELLS

Lab Sample ID: 380-72259-9

Date Collected: 11/20/23 10:09

Matrix: Water

Date Received: 11/22/23 10:50

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-Chloroeicosfluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF30UdS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:43	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:43	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:43	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:43	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:43	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:43	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:43	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:43	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:43	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:43	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:43	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:43	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:43	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:43	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:43	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:43	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:43	1

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# Client Sample Results

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

Job ID: 380-72259-1

**Client Sample ID: FB MOANALUA WELLS**

**Lab Sample ID: 380-72259-9**

Date Collected: 11/20/23 10:09

Matrix: Water

Date Received: 11/22/23 10:50

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:43	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:43	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:43	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:43	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:43	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:43	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:43	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:43	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	96		50 - 200			12/05/23 08:54	12/07/23 19:43	1
13C6 PFDA	108		50 - 200			12/05/23 08:54	12/07/23 19:43	1
13C5 PFHxA	105		50 - 200			12/05/23 08:54	12/07/23 19:43	1
13C4 PFHpA	105		50 - 200			12/05/23 08:54	12/07/23 19:43	1
13C8 PFOA	107		50 - 200			12/05/23 08:54	12/07/23 19:43	1
13C9 PFNA	108		50 - 200			12/05/23 08:54	12/07/23 19:43	1
13C7 PFUnA	107		50 - 200			12/05/23 08:54	12/07/23 19:43	1
13C2 PFDoA	105		50 - 200			12/05/23 08:54	12/07/23 19:43	1
13C4 PFBA	100		50 - 200			12/05/23 08:54	12/07/23 19:43	1
13C5 PFPeA	105		50 - 200			12/05/23 08:54	12/07/23 19:43	1
13C3 PFBS	106		50 - 200			12/05/23 08:54	12/07/23 19:43	1
13C3 PFHxS	109		50 - 200			12/05/23 08:54	12/07/23 19:43	1
13C8 PFOS	109		50 - 200			12/05/23 08:54	12/07/23 19:43	1
13C2-4:2-FTS	141		50 - 200			12/05/23 08:54	12/07/23 19:43	1
13C2-6:2-FTS	133		50 - 200			12/05/23 08:54	12/07/23 19:43	1
13C2-8:2-FTS	138		50 - 200			12/05/23 08:54	12/07/23 19:43	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		11/29/23 04:52	11/30/23 18:18	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:18	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:18	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:18	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:18	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:18	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:18	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:18	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:18	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:18	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:18	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:18	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:18	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:18	1

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# Client Sample Results

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

Job ID: 380-72259-1

## Client Sample ID: FB MOANALUA WELLS

Lab Sample ID: 380-72259-9

Date Collected: 11/20/23 10:09

Matrix: Water

Date Received: 11/22/23 10:50

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:18	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:18	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:18	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:18	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	106		70 - 130			11/29/23 04:52	11/30/23 18:18	1
13C2 PFHxA	102		70 - 130			11/29/23 04:52	11/30/23 18:18	1
13C2 PFDA	110		70 - 130			11/29/23 04:52	11/30/23 18:18	1
13C3-GenX	88		70 - 130			11/29/23 04:52	11/30/23 18:18	1

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

Lab Sample ID: 380-72259-10

Date Collected: 11/20/23 11:08

Matrix: Water

Date Received: 11/22/23 10:50

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		12/05/23 08:54	12/07/23 19:52	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:52	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:52	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:52	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:52	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:52	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:52	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:52	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:52	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:52	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:52	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:52	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:52	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:52	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:52	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:52	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:52	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:52	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:52	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:52	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:52	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:52	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:52	1

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# Client Sample Results

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

Job ID: 380-72259-1

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

**Lab Sample ID: 380-72259-10**

Date Collected: 11/20/23 11:08

Matrix: Water

Date Received: 11/22/23 10:50

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:52	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 19:52	1
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	95		50 - 200			12/05/23 08:54	12/07/23 19:52	1
13C6 PFDA	105		50 - 200			12/05/23 08:54	12/07/23 19:52	1
13C5 PFHxA	98		50 - 200			12/05/23 08:54	12/07/23 19:52	1
13C4 PFHpA	102		50 - 200			12/05/23 08:54	12/07/23 19:52	1
13C8 PFOA	102		50 - 200			12/05/23 08:54	12/07/23 19:52	1
13C9 PFNA	100		50 - 200			12/05/23 08:54	12/07/23 19:52	1
13C7 PFUnA	103		50 - 200			12/05/23 08:54	12/07/23 19:52	1
13C2 PFDoA	97		50 - 200			12/05/23 08:54	12/07/23 19:52	1
13C4 PFBA	102		50 - 200			12/05/23 08:54	12/07/23 19:52	1
13C5 PFPeA	105		50 - 200			12/05/23 08:54	12/07/23 19:52	1
13C3 PFBS	100		50 - 200			12/05/23 08:54	12/07/23 19:52	1
13C3 PFHxS	102		50 - 200			12/05/23 08:54	12/07/23 19:52	1
13C8 PFOS	103		50 - 200			12/05/23 08:54	12/07/23 19:52	1
13C2-4:2-FTS	145		50 - 200			12/05/23 08:54	12/07/23 19:52	1
13C2-6:2-FTS	129		50 - 200			12/05/23 08:54	12/07/23 19:52	1
13C2-8:2-FTS	140		50 - 200			12/05/23 08:54	12/07/23 19:52	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		11/29/23 04:52	11/30/23 18:28	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:28	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:28	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:28	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:28	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:28	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:28	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:28	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:28	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:28	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:28	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:28	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:28	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:28	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:28	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:28	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:28	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:28	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	107		70 - 130			11/29/23 04:52	11/30/23 18:28	1
13C2 PFHxA	106		70 - 130			11/29/23 04:52	11/30/23 18:28	1

Eurofins Eaton Analytical Pomona



# Client Sample Results

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

Job ID: 380-72259-1

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

Lab Sample ID: 380-72259-10

Date Collected: 11/20/23 11:08

Matrix: Water

Date Received: 11/22/23 10:50

PWSID Number: HI0000331

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<sup>13</sup> C2 PFDA	109		70 - 130	11/29/23 04:52	11/30/23 18:28	1
<sup>13</sup> C3-GenX	90		70 - 130	11/29/23 04:52	11/30/23 18:28	1

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

Lab Sample ID: 380-72259-11

Date Collected: 11/20/23 11:35

Matrix: Water

Date Received: 11/22/23 10:50

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		12/05/23 08:54	12/07/23 20:02	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:02	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:02	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:02	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:02	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:02	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:02	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:02	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:02	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:02	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:02	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:02	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:02	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:02	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:02	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:02	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:02	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:02	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:02	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:02	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:02	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:02	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:02	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:02	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:02	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
<sup>13</sup> C3 HFPO-DA	98		50 - 200	12/05/23 08:54	12/07/23 20:02	1
<sup>13</sup> C6 PFDA	106		50 - 200	12/05/23 08:54	12/07/23 20:02	1
<sup>13</sup> C5 PFHxA	103		50 - 200	12/05/23 08:54	12/07/23 20:02	1
<sup>13</sup> C4 PFHpA	103		50 - 200	12/05/23 08:54	12/07/23 20:02	1

Eurofins Eaton Analytical Pomona

# Client Sample Results

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

Job ID: 380-72259-1

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

**Lab Sample ID: 380-72259-11**

**Date Collected: 11/20/23 11:35**

**Matrix: Water**

**Date Received: 11/22/23 10:50**

**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	104		50 - 200	12/05/23 08:54	12/07/23 20:02	1
13C9 PFNA	103		50 - 200	12/05/23 08:54	12/07/23 20:02	1
13C7 PFUnA	100		50 - 200	12/05/23 08:54	12/07/23 20:02	1
13C2 PFDoA	103		50 - 200	12/05/23 08:54	12/07/23 20:02	1
13C4 PFBA	101		50 - 200	12/05/23 08:54	12/07/23 20:02	1
13C5 PFPeA	109		50 - 200	12/05/23 08:54	12/07/23 20:02	1
13C3 PFBS	100		50 - 200	12/05/23 08:54	12/07/23 20:02	1
13C3 PFHxS	104		50 - 200	12/05/23 08:54	12/07/23 20:02	1
13C8 PFOS	107		50 - 200	12/05/23 08:54	12/07/23 20:02	1
13C2-4:2-FTS	133		50 - 200	12/05/23 08:54	12/07/23 20:02	1
13C2-6:2-FTS	129		50 - 200	12/05/23 08:54	12/07/23 20:02	1
13C2-8:2-FTS	146		50 - 200	12/05/23 08:54	12/07/23 20:02	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		11/29/23 04:52	11/30/23 18:37	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:37	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:37	1
N-methylperfluorooctanesulfonamide cetic acid (NMeFOSAA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:37	1
N-ethylperfluorooctanesulfonamide cetic acid (NEtFOSAA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:37	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:37	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:37	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:37	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:37	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:37	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:37	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:37	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:37	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:37	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:37	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:37	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:37	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	104		70 - 130	11/29/23 04:52	11/30/23 18:37	1
13C2 PFHxA	103		70 - 130	11/29/23 04:52	11/30/23 18:37	1
13C2 PFDA	106		70 - 130	11/29/23 04:52	11/30/23 18:37	1
13C3-GenX	90		70 - 130	11/29/23 04:52	11/30/23 18:37	1



# Client Sample Results

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

Job ID: 380-72259-1

**Client Sample ID: FB HALAWA WELLS UNITS 1 & 2 P1**

**Lab Sample ID: 380-72259-12**

**Date Collected: 11/20/23 10:40**

**Matrix: Water**

**Date Received: 11/22/23 10:50**

**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		12/05/23 08:54	12/07/23 20:11	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:11	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:11	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:11	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:11	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:11	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:11	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:11	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:11	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:11	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:11	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:11	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:11	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:11	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:11	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:11	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:11	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:11	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:11	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:11	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:11	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:11	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:11	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:11	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		12/05/23 08:54	12/07/23 20:11	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	95		50 - 200	12/05/23 08:54	12/07/23 20:11	1
13C6 PFDA	104		50 - 200	12/05/23 08:54	12/07/23 20:11	1
13C5 PFHxA	103		50 - 200	12/05/23 08:54	12/07/23 20:11	1
13C4 PFHpA	106		50 - 200	12/05/23 08:54	12/07/23 20:11	1
13C8 PFOA	104		50 - 200	12/05/23 08:54	12/07/23 20:11	1
13C9 PFNA	107		50 - 200	12/05/23 08:54	12/07/23 20:11	1
13C7 PFUnA	104		50 - 200	12/05/23 08:54	12/07/23 20:11	1
13C2 PFDoA	103		50 - 200	12/05/23 08:54	12/07/23 20:11	1
13C4 PFBA	105		50 - 200	12/05/23 08:54	12/07/23 20:11	1
13C5 PFPeA	109		50 - 200	12/05/23 08:54	12/07/23 20:11	1
13C3 PFBS	103		50 - 200	12/05/23 08:54	12/07/23 20:11	1
13C3 PFHxS	105		50 - 200	12/05/23 08:54	12/07/23 20:11	1
13C8 PFOS	105		50 - 200	12/05/23 08:54	12/07/23 20:11	1

Eurofins Eaton Analytical Pomona

# Client Sample Results

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

Job ID: 380-72259-1

**Client Sample ID: FB HALAWA WELLS UNITS 1 & 2 P1**

**Lab Sample ID: 380-72259-12**

**Date Collected: 11/20/23 10:40**

**Matrix: Water**

**Date Received: 11/22/23 10:50**

**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	136		50 - 200	12/05/23 08:54	12/07/23 20:11	1
13C2-6:2-FTS	131		50 - 200	12/05/23 08:54	12/07/23 20:11	1
13C2-8:2-FTS	152		50 - 200	12/05/23 08:54	12/07/23 20:11	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		11/29/23 04:52	11/30/23 18:47	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:47	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:47	1
N-methylperfluorooctanesulfonamideacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:47	1
N-ethylperfluorooctanesulfonamideacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:47	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:47	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:47	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:47	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:47	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:47	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:47	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:47	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:47	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:47	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:47	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:47	1
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:47	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		11/29/23 04:52	11/30/23 18:47	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	105		70 - 130	11/29/23 04:52	11/30/23 18:47	1
13C2 PFHxA	104		70 - 130	11/29/23 04:52	11/30/23 18:47	1
13C2 PFDA	114		70 - 130	11/29/23 04:52	11/30/23 18:47	1
13C3-GenX	95		70 - 130	11/29/23 04:52	11/30/23 18:47	1

# Action Limit Summary

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

Job ID: 380-72259-1

**Client Sample ID: MOANALUA WELLS**

**Lab Sample ID: 380-72259-1**

**PWSID Number: HI0000331**

## Compliance Check

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

Analyte	Result	Qualifier	Unit	EPAMCL		RL	Method	Prep Type
				Limit				
Alachlor	<0.050		ug/L	2		0.050	525.2	Total/NA
Atrazine	<0.050	F1	ug/L	3		0.050	525.2	Total/NA
Benzo[a]pyrene	<0.020		ug/L	0.2		0.020	525.2	Total/NA
Bis(2-ethylhexyl) phthalate	<0.59		ug/L	6		0.59	525.2	Total/NA
Di(2-ethylhexyl)adipate	<0.59		ug/L	400		0.59	525.2	Total/NA
Endrin	<0.099		ug/L	2		0.099	525.2	Total/NA
Heptachlor	<0.040		ug/L	0.4		0.040	525.2	Total/NA
Heptachlor epoxide (isomer B)	<0.050		ug/L	0.2		0.050	525.2	Total/NA
Hexachlorobenzene	<0.050		ug/L	1		0.050	525.2	Total/NA
Hexachlorocyclopentadiene	<0.050		ug/L	50		0.050	525.2	Total/NA
Lindane	<0.040		ug/L	0.2		0.040	525.2	Total/NA
Methoxychlor	<0.099		ug/L	40		0.099	525.2	Total/NA
Simazine	<0.050	F1	ug/L	4		0.050	525.2	Total/NA

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

**Lab Sample ID: 380-72259-2**

**PWSID Number: HI0000331**

## Compliance Check

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

Analyte	Result	Qualifier	Unit	EPAMCL		RL	Method	Prep Type
				Limit				
Alachlor	<0.049		ug/L	2		0.049	525.2	Total/NA
Atrazine	<0.049		ug/L	3		0.049	525.2	Total/NA
Benzo[a]pyrene	<0.020		ug/L	0.2		0.020	525.2	Total/NA
Bis(2-ethylhexyl) phthalate	<0.59		ug/L	6		0.59	525.2	Total/NA
Di(2-ethylhexyl)adipate	<0.59		ug/L	400		0.59	525.2	Total/NA
Endrin	<0.099		ug/L	2		0.099	525.2	Total/NA
Heptachlor	<0.039		ug/L	0.4		0.039	525.2	Total/NA
Heptachlor epoxide (isomer B)	<0.049		ug/L	0.2		0.049	525.2	Total/NA
Hexachlorobenzene	<0.049		ug/L	1		0.049	525.2	Total/NA
Hexachlorocyclopentadiene	<0.049		ug/L	50		0.049	525.2	Total/NA
Lindane	<0.039		ug/L	0.2		0.039	525.2	Total/NA
Methoxychlor	<0.099		ug/L	40		0.099	525.2	Total/NA
Simazine	<0.049		ug/L	4		0.049	525.2	Total/NA

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

**Lab Sample ID: 380-72259-3**

**PWSID Number: HI0000331**

## Compliance Check

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

Analyte	Result	Qualifier	Unit	EPAMCL		RL	Method	Prep Type
				Limit				
Alachlor	<0.050		ug/L	2		0.050	525.2	Total/NA
Atrazine	<0.050		ug/L	3		0.050	525.2	Total/NA

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# Action Limit Summary

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

Job ID: 380-72259-1

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

**Lab Sample ID: 380-72259-3**

**(Continued)**

**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			
Benzo[a]pyrene	<0.020		ug/L	0.2	0.020	525.2	Total/NA
Bis(2-ethylhexyl) phthalate	<0.59		ug/L	6	0.59	525.2	Total/NA
Di(2-ethylhexyl)adipate	<0.59		ug/L	400	0.59	525.2	Total/NA
Endrin	<0.099		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)	<0.050		ug/L	0.2	0.050	525.2	Total/NA
Hexachlorobenzene	<0.050		ug/L	1	0.050	525.2	Total/NA
Hexachlorocyclopentadiene	<0.050		ug/L	50	0.050	525.2	Total/NA
Lindane	<0.040		ug/L	0.2	0.040	525.2	Total/NA
Methoxychlor	<0.099		ug/L	40	0.099	525.2	Total/NA
Simazine	<0.050		ug/L	4	0.050	525.2	Total/NA

**Client Sample ID: HALAWA WELLS UNITS 1 & 2 P1**

**Lab Sample ID: 380-72259-4**

**PWSID Number: HI0000331**

## Compliance Check

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

Analyte	Result	Qualifier	Unit	EPAMCL	RL	Method	Prep Type
				Limit			
Alachlor	<0.049		ug/L	2	0.049	525.2	Total/NA
Atrazine	<0.049		ug/L	3	0.049	525.2	Total/NA
Benzo[a]pyrene	<0.020		ug/L	0.2	0.020	525.2	Total/NA
Bis(2-ethylhexyl) phthalate	<0.59		ug/L	6	0.59	525.2	Total/NA
Di(2-ethylhexyl)adipate	<0.59		ug/L	400	0.59	525.2	Total/NA
Endrin	<0.099		ug/L	2	0.099	525.2	Total/NA
Heptachlor	<0.039		ug/L	0.4	0.039	525.2	Total/NA
Heptachlor epoxide (isomer B)	<0.049		ug/L	0.2	0.049	525.2	Total/NA
Hexachlorobenzene	<0.049		ug/L	1	0.049	525.2	Total/NA
Hexachlorocyclopentadiene	<0.049		ug/L	50	0.049	525.2	Total/NA
Lindane	<0.039		ug/L	0.2	0.039	525.2	Total/NA
Methoxychlor	<0.099		ug/L	40	0.099	525.2	Total/NA
Simazine	<0.049		ug/L	4	0.049	525.2	Total/NA

# Surrogate Summary

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

Job ID: 380-72259-1

## 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)
380-72259-1	MOANALUA WELLS	97	89	103
380-72259-1 MS	MOANALUA WELLS	92	91	107
380-72259-2	AIEA GULCH WELLS PUMP 2	97	92	101
380-72259-3	AIEA WELLS PUMPS 1&2 (260) P2	98	90	102
380-72259-4	HALAWA WELLS UNITS 1 & 2 P1	96	91	103

**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)
380-72262-B-2-A DU	Duplicate	100	89	121
LCS 380-65150/23-A	Lab Control Sample	97	92	103
MB 380-65150/21-A	Method Blank	96	90	102
MRL 380-65150/22-A	Lab Control Sample	98	89	99

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

## Method: 8015B GRO LL - Gasoline Range Organics - (GC)

Matrix: Drinking Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		BFB1 (38-134)
380-72259-1	MOANALUA WELLS	69
380-72259-1 MS	MOANALUA WELLS	104
380-72259-1 MSD	MOANALUA WELLS	86
380-72259-2	AIEA GULCH WELLS PUMP 2	106
380-72259-3	AIEA WELLS PUMPS 1&2 (260) P2	108
380-72259-4	HALAWA WELLS UNITS 1 & 2 P1	90

**Surrogate Legend**  
 BFB = 4-Bromofluorobenzene (Surr)

# Surrogate Summary

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

Job ID: 380-72259-1

## Method: 8015B GRO LL - Gasoline Range Organics - (GC)

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB1 (38-134)
380-72259-5	TB MOANALUA WELLS	93
380-72259-6	TB AIEA GULCH WELLS PUMP 2	86
380-72259-7	TB AIEA WELLS PUMPS 1&2 (260) P2	100
380-72259-8	TB HALAWA WELLS UNITS 1 & 2 P1	89
LCS 570-388050/4	Lab Control Sample	103
LCS 570-388050/5	Lab Control Sample Dup	108
MB 570-388050/6	Method Blank	74
MRL 570-388050/3	Lab Control Sample	69

#### Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

## Method: 8015B - Diesel Range Organics (DRO) (GC) Low Level

Matrix: Drinking Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	OTCSN1 (60-130)
380-72259-1	MOANALUA WELLS	115
380-72259-2	AIEA GULCH WELLS PUMP 2	111
380-72259-3	AIEA WELLS PUMPS 1&2 (260) P2	103
380-72259-4	HALAWA WELLS UNITS 1 & 2 P1	113

#### Surrogate Legend

OTCSN = n-Octacosane (Surr)

## Method: 8015B - Diesel Range Organics (DRO) (GC) Low Level

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	OTCSN1 (60-130)
LCS 570-386928/2-A	Lab Control Sample	105
LCS 570-386928/3-A	Lab Control Sample Dup	104
MB 570-386928/1-A	Method Blank	113

#### Surrogate Legend

OTCSN = n-Octacosane (Surr)

## Method: 8015B - Nonhalogenated Organic Compounds - Direct Injection (GC)

Matrix: Drinking Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HF2PP1 (54-120)
380-72259-1	MOANALUA WELLS	85
380-72259-2	AIEA GULCH WELLS PUMP 2	86
380-72259-3	AIEA WELLS PUMPS 1&2 (260) P2	90

# Surrogate Summary

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

Job ID: 380-72259-1

## Method: 8015B - Nonhalogenated Organic Compounds - Direct Injection (GC) (Continued)

Matrix: Drinking Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HF2PP1 (54-120)
380-72259-4	HALAWA WELLS UNITS 1 & 2 F	88

#### Surrogate Legend

HF2PP = Hexafluoro-2-propanol (Surr)

## Method: 8015B - Nonhalogenated Organic Compounds - Direct Injection (GC)

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HF2PP1 (54-120)
380-71845-AK-1 MS	Matrix Spike	89
380-71845-AK-1 MSD	Matrix Spike Duplicate	72
LCS 570-387901/4	Lab Control Sample	98
LCSD 570-387901/5	Lab Control Sample Dup	98
MB 570-387901/3	Method Blank	94
MRL 570-387901/6	Lab Control Sample	105

#### Surrogate Legend

HF2PP = Hexafluoro-2-propanol (Surr)

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

Matrix: Drinking Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		d5NEFOS (70-130)	PFHxA (70-130)	PFDA (70-130)	GenX (70-130)
380-72259-1	MOANALUA WELLS	109	107	109	107
380-72259-2	AIEA GULCH WELLS PUMP 2	108	109	109	103
380-72259-3	AIEA WELLS PUMPS 1&2 (260) P2	104	107	110	111
380-72259-4	HALAWA WELLS UNITS 1 & 2 P1	104	110	114	115

#### 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

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		d5NEFOS (70-130)	PFHxA (70-130)	PFDA (70-130)	GenX (70-130)
380-71915-M-1-A MS	Matrix Spike	104	113	123	130
380-71915-N-1-A MSD	Matrix Spike Duplicate	101	111	118	118
380-72259-9	FB MOANALUA WELLS	106	102	110	88
380-72259-10	FB AIEA GULCH WELLS PUMP 2	107	106	109	90
380-72259-11	FB AIEA WELLS PUMPS 1&2 (260) P2	104	103	106	90

# Surrogate Summary

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

Job ID: 380-72259-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		d5NEFOS (70-130)	PFHxA (70-130)	PFDA (70-130)	GenX (70-130)
380-72259-12	FB HALAWA WELLS UNITS 1 &	105	104	114	95
LCS 380-65683/23-A	Lab Control Sample	100	116	117	106
LCSD 380-65683/24-A	Lab Control Sample Dup	97	101	106	92
MBL 380-65683/21-A	Method Blank	103	100	106	95
MRL 380-65683/22-A	Lab Control Sample	112	104	111	95

### Surrogate Legend

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

## Method: 625 PAH Physis LL (EAL) + TICs - EPA 625 Base/Neutral and Acid Organics i

Matrix: BlankMatrix

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)				
		Acenaphtl (27-133)	Phenanth (43-129)	CRY (52-144)	NPT (25-125)	PRY (36-161)
113154-B1	Method Blank	89	107	99	81	99
113154-BS1	Lab Control Sample	78	104	88	73	96
113154-BS2	Lab Control Sample Dup	71	93	96	67	93

### Surrogate Legend

(d10-Acenaphthene) = (d10-Acenaphthene)  
 (d10-Phenanthrene) = (d10-Phenanthrene)  
 CRY = (d12-Chrysene)  
 NPT = (d8-Naphthalene)  
 PRY = (d12-Perylene)

## Method: 625 PAH Physis LL (EAL) + TICs - EPA 625 Base/Neutral and Acid Organics i

Matrix: Drinking Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)				
		Acenaphtl (27-133)	Phenanth (43-129)	CRY (52-144)	NPT (25-125)	PRY (36-161)
380-72259-1	MOANALUA WELLS	77	96	87	70	101
380-72259-2	AIEA GULCH WELLS PUMP 2	77	90	82	74	103
380-72259-3	AIEA WELLS PUMPS 1&2 (260) P2	61	67	83	59	96
380-72259-4	HALAWA WELLS UNITS 1 & 2 P1	47	53	78	50	85

### Surrogate Legend

(d10-Acenaphthene) = (d10-Acenaphthene)  
 (d10-Phenanthrene) = (d10-Phenanthrene)  
 CRY = (d12-Chrysene)  
 NPT = (d8-Naphthalene)  
 PRY = (d12-Perylene)



# Isotope Dilution Summary

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

Job ID: 380-72259-1

## 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)
380-72259-1	MOANALUA WELLS	104	107	106	106	104	110	106	107
380-72259-2	AIEA GULCH WELLS PUMP 2	94	107	104	106	104	101	99	103
380-72259-3	AIEA WELLS PUMPS 1&2 (260) P2	70	104	80	91	93	101	103	103
380-72259-4	HALAWA WELLS UNITS 1 & 2 P1	87	104	92	93	97	98	100	99

		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)
380-72259-1	MOANALUA WELLS	102	109	98	101	105	140	138	137
380-72259-2	AIEA GULCH WELLS PUMP 2	104	111	97	104	103	135	122	146
380-72259-3	AIEA WELLS PUMPS 1&2 (260) P2	76	83	95	100	103	118	116	139
380-72259-4	HALAWA WELLS UNITS 1 & 2 P1	93	98	97	101	102	139	132	172

### 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)
380-72259-9	FB MOANALUA WELLS	96	108	105	105	107	108	107	105
380-72259-10	FB AIEA GULCH WELLS PUMP 2	95	105	98	102	102	100	103	97
380-72259-11	FB AIEA WELLS PUMPS 1&2 (260) P2	98	106	103	103	104	103	100	103
380-72259-12	FB HALAWA WELLS UNITS 1 & 2 P1	95	104	103	106	104	107	104	103
380-72663-B-1-A MS	Matrix Spike	102	98	80	81	90	97	93	92
380-72663-C-1-A MSD	Matrix Spike Duplicate	103	90	80	80	89	91	85	80
380-73972-B-1-B LMS	Matrix Spike	50	97	55	64	73	82	93	97
380-73972-C-1-B LMSD	Matrix Spike Duplicate	60	93	65	68	77	86	90	99
LCS 380-66506/23-A	Lab Control Sample	103	108	108	105	105	103	107	107

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# Isotope Dilution Summary

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

Job ID: 380-72259-1

## 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	HFPODA (50-200)	C6PFDA (50-200)	13C5PHA (50-200)	C4PFHA (50-200)	C8PFOA (50-200)	C9PFNA (50-200)	13C7PUA (50-200)	PFDoA (50-200)
LCS 380-67260/23-A	Lab Control Sample	99	105	102	98	101	102	106	106
LCSD 380-66506/24-A	Lab Control Sample Dup	100	113	104	101	104	108	107	109
LCSD 380-67260/24-A	Lab Control Sample Dup	94	108	98	99	102	105	106	104
MBL 380-66506/21-A	Method Blank	72	92	87	87	89	91	89	91
MBL 380-67260/21-A	Method Blank	93	99	94	91	95	98	97	94
MRL 380-66506/22-A	Lab Control Sample	94	104	102	104	105	104	100	100
MRL 380-67260/22-A	Lab Control Sample	92	107	102	100	102	103	103	106

### 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)
380-72259-9	FB MOANALUA WELLS	100	105	106	109	109	141	133	138
380-72259-10	FB AIEA GULCH WELLS PUMP 2	102	105	100	102	103	145	129	140
380-72259-11	FB AIEA WELLS PUMPS 1&2 (260) P2	101	109	100	104	107	133	129	146
380-72259-12	FB HALAWA WELLS UNITS 1 & 2 P1	105	109	103	105	105	136	131	152
380-72663-B-1-A MS	Matrix Spike	85	272 *5+	88	96	101	148	150	181
380-72663-C-1-A MSD	Matrix Spike Duplicate	93	307 *5+	93	102	104	154	185	202 *5+
380-73972-B-1-B LMS	Matrix Spike	57	56	93	103	106	105	121	138
380-73972-C-1-B LMSD	Matrix Spike Duplicate	65	63	95	102	104	109	106	139
LCS 380-66506/23-A	Lab Control Sample	106	109	103	105	105	122	123	136
LCS 380-67260/23-A	Lab Control Sample	102	102	98	97	101	96	99	106
LCSD 380-66506/24-A	Lab Control Sample Dup	107	120	109	108	108	129	120	146
LCSD 380-67260/24-A	Lab Control Sample Dup	100	100	94	99	102	98	98	109
MBL 380-66506/21-A	Method Blank	89	92	90	91	94	104	105	127
MBL 380-67260/21-A	Method Blank	95	93	88	89	93	89	93	104
MRL 380-66506/22-A	Lab Control Sample	105	115	97	101	104	117	120	123
MRL 380-67260/22-A	Lab Control Sample	100	99	96	95	99	99	99	111

#### Surrogate Legend

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

# QC Sample Results

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

Job ID: 380-72259-1

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

**Lab Sample ID: MB 380-65150/21-A**  
**Matrix: Water**  
**Analysis Batch: 65219**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 65150**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 11:40	1
2,4'-DDD	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 11:40	1
2,4'-DDE	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 11:40	1
2,4'-DDT	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 11:40	1
2,4-Dinitrotoluene	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 11:40	1
2,6-Dinitrotoluene	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 11:40	1
2-Methylnaphthalene	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 11:40	1
4,4'-DDD	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 11:40	1
4,4'-DDE	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 11:40	1
4,4'-DDT	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 11:40	1
Acenaphthene	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 11:40	1
Acenaphthylene	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 11:40	1
Acetochlor	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 11:40	1
Alachlor	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 11:40	1
alpha-BHC	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 11:40	1
alpha-Chlordane	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 11:40	1
Anthracene	<0.020		0.020	ug/L		11/24/23 17:31	11/26/23 11:40	1
Atrazine	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 11:40	1
Benz(a)anthracene	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 11:40	1
Benzo[a]pyrene	<0.020		0.020	ug/L		11/24/23 17:31	11/26/23 11:40	1
Benzo[b]fluoranthene	<0.020		0.020	ug/L		11/24/23 17:31	11/26/23 11:40	1
Benzo[g,h,i]perylene	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 11:40	1
Benzo[k]fluoranthene	<0.020		0.020	ug/L		11/24/23 17:31	11/26/23 11:40	1
beta-BHC	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 11:40	1
Bis(2-ethylhexyl) phthalate	<0.59		0.59	ug/L		11/24/23 17:31	11/26/23 11:40	1
Bromacil	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 11:40	1
Butachlor	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 11:40	1
Butylbenzylphthalate	<0.49		0.49	ug/L		11/24/23 17:31	11/26/23 11:40	1
Chlorobenzilate	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 11:40	1
Chloroneb	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 11:40	1
Chlorothalonil (Draconil, Bravo)	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 11:40	1
Chlorpyrifos	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 11:40	1
Chrysene	<0.020		0.020	ug/L		11/24/23 17:31	11/26/23 11:40	1
delta-BHC	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 11:40	1
Di(2-ethylhexyl)adipate	<0.59		0.59	ug/L		11/24/23 17:31	11/26/23 11:40	1
Dibenz(a,h)anthracene	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 11:40	1
Diclorvos (DDVP)	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 11:40	1
Dieldrin	<0.20		0.20	ug/L		11/24/23 17:31	11/26/23 11:40	1
Diethylphthalate	<0.49		0.49	ug/L		11/24/23 17:31	11/26/23 11:40	1
Dimethylphthalate	<0.49		0.49	ug/L		11/24/23 17:31	11/26/23 11:40	1
Di-n-butyl phthalate	<0.99		0.99	ug/L		11/24/23 17:31	11/26/23 11:40	1
Di-n-octyl phthalate	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 11:40	1
Endosulfan I (Alpha)	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 11:40	1
Endosulfan II (Beta)	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 11:40	1
Endosulfan sulfate	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 11:40	1
Endrin	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 11:40	1
Endrin aldehyde	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 11:40	1
EPTC	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 11:40	1

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# QC Sample Results

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

Job ID: 380-72259-1

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

**Lab Sample ID: MB 380-65150/21-A**  
**Matrix: Water**  
**Analysis Batch: 65219**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 65150**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoranthene	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 11:40	1
Fluorene	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 11:40	1
gamma-Chlordane	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 11:40	1
Heptachlor	<0.039		0.039	ug/L		11/24/23 17:31	11/26/23 11:40	1
Heptachlor epoxide (isomer B)	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 11:40	1
Hexachlorobenzene	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 11:40	1
Hexachlorocyclopentadiene	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 11:40	1
Indeno[1,2,3-cd]pyrene	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 11:40	1
Isophorone	<0.49		0.49	ug/L		11/24/23 17:31	11/26/23 11:40	1
Lindane	<0.039		0.039	ug/L		11/24/23 17:31	11/26/23 11:40	1
Malathion	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 11:40	1
Methoxychlor	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 11:40	1
Metolachlor	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 11:40	1
Molinate	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 11:40	1
Naphthalene	<0.30		0.30	ug/L		11/24/23 17:31	11/26/23 11:40	1
Parathion	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 11:40	1
Pendimethalin (Penoxaline)	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 11:40	1
Phenanthrene	<0.039		0.039	ug/L		11/24/23 17:31	11/26/23 11:40	1
Propachlor	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 11:40	1
Pyrene	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 11:40	1
Simazine	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 11:40	1
Terbacil	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 11:40	1
Terbutylazine	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 11:40	1
Thiobencarb	<0.20		0.20	ug/L		11/24/23 17:31	11/26/23 11:40	1
Total Permethrin (mixed isomers)	<0.20		0.20	ug/L		11/24/23 17:31	11/26/23 11:40	1
trans-Nonachlor	<0.049		0.049	ug/L		11/24/23 17:31	11/26/23 11:40	1
Trifluralin	<0.099		0.099	ug/L		11/24/23 17:31	11/26/23 11:40	1

Tentatively Identified Compound	MB Est. Result	MB Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Decane	3.25	T J N	ug/L		2.27	124-18-5	11/24/23 17:31	11/26/23 11:40	1
9-Octadecenamamide, (Z)-	1.95	T J N	ug/L		7.14	301-02-0	11/24/23 17:31	11/26/23 11:40	1
Unknown	0.508	T J	ug/L		15.58	N/A	11/24/23 17:31	11/26/23 11:40	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	96		70 - 130	11/24/23 17:31	11/26/23 11:40	1
Perylene-d12	90		70 - 130	11/24/23 17:31	11/26/23 11:40	1
Triphenylphosphate	102		70 - 130	11/24/23 17:31	11/26/23 11:40	1

**Lab Sample ID: LCS 380-65150/23-A**  
**Matrix: Water**  
**Analysis Batch: 65219**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 65150**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1-Methylnaphthalene	1.97	2.07		ug/L		105	70 - 130
2,4'-DDD	1.97	2.03		ug/L		103	70 - 130
2,4'-DDE	1.97	2.04		ug/L		104	70 - 130
2,4'-DDT	1.97	2.34		ug/L		119	70 - 130
2,4-Dinitrotoluene	1.97	2.01		ug/L		102	70 - 130

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# QC Sample Results

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

Job ID: 380-72259-1

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

**Lab Sample ID: LCS 380-65150/23-A**  
**Matrix: Water**  
**Analysis Batch: 65219**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 65150**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,6-Dinitrotoluene	1.97	2.00		ug/L		102	70 - 130
2-Methylnaphthalene	1.97	2.11		ug/L		107	70 - 130
4,4'-DDD	1.97	2.17		ug/L		110	70 - 130
4,4'-DDE	1.97	1.93		ug/L		98	70 - 130
4,4'-DDT	1.97	2.22		ug/L		113	70 - 130
Acenaphthene	1.97	2.10		ug/L		107	70 - 130
Acenaphthylene	1.97	1.99		ug/L		101	70 - 130
Acetochlor	1.97	1.90		ug/L		97	70 - 130
Alachlor	1.97	2.20		ug/L		112	70 - 130
alpha-BHC	1.97	2.22		ug/L		113	70 - 130
alpha-Chlordane	1.97	2.03		ug/L		103	70 - 130
Anthracene	1.97	2.03		ug/L		103	70 - 130
Atrazine	1.97	2.36		ug/L		120	70 - 130
Benz(a)anthracene	1.97	2.22		ug/L		113	70 - 130
Benzo[a]pyrene	1.97	1.97		ug/L		100	70 - 130
Benzo[b]fluoranthene	1.97	2.04		ug/L		104	70 - 130
Benzo[g,h,i]perylene	1.97	2.00		ug/L		102	70 - 130
Benzo[k]fluoranthene	1.97	2.11		ug/L		107	70 - 130
beta-BHC	1.97	2.26		ug/L		115	70 - 130
Bis(2-ethylhexyl) phthalate	1.97	1.87		ug/L		95	70 - 130
Bromacil	1.97	2.18		ug/L		111	70 - 130
Butachlor	1.97	2.44		ug/L		124	70 - 130
Butylbenzylphthalate	1.97	2.40		ug/L		122	70 - 130
Chlorobenzilate	1.97	2.22		ug/L		113	70 - 130
Chloroneb	1.97	2.05		ug/L		104	70 - 130
Chlorothalonil (Draconil, Bravo)	1.97	1.98		ug/L		101	70 - 130
Chlorpyrifos	1.97	2.15		ug/L		109	70 - 130
Chrysene	1.97	2.07		ug/L		105	70 - 130
delta-BHC	1.97	2.05		ug/L		104	70 - 130
Di(2-ethylhexyl)adipate	1.97	2.35		ug/L		119	70 - 130
Dibenz(a,h)anthracene	1.97	1.89		ug/L		96	70 - 130
Diclorvos (DDVP)	1.97	1.86		ug/L		95	70 - 130
Dieldrin	1.97	1.96		ug/L		100	70 - 130
Diethylphthalate	1.97	2.32		ug/L		118	70 - 130
Dimethylphthalate	1.97	2.17		ug/L		111	70 - 130
Di-n-butyl phthalate	3.94	4.12		ug/L		105	70 - 130
Di-n-octyl phthalate	1.97	1.70		ug/L		86	70 - 130
Endosulfan I (Alpha)	1.97	2.10		ug/L		107	70 - 130
Endosulfan II (Beta)	1.97	2.28		ug/L		116	70 - 130
Endosulfan sulfate	1.97	2.17		ug/L		110	70 - 130
Endrin	1.97	2.14		ug/L		109	70 - 130
Endrin aldehyde	1.97	1.96		ug/L		100	70 - 130
EPTC	1.97	2.22		ug/L		113	70 - 130
Fluoranthene	1.97	2.13		ug/L		108	70 - 130
Fluorene	1.97	2.17		ug/L		110	70 - 130
gamma-Chlordane	1.97	1.98		ug/L		100	70 - 130
Heptachlor	1.97	2.36		ug/L		120	70 - 130
Heptachlor epoxide (isomer B)	1.97	1.94		ug/L		99	70 - 130
Hexachlorobenzene	1.97	1.98		ug/L		101	70 - 130

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# QC Sample Results

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

Job ID: 380-72259-1

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

**Lab Sample ID: LCS 380-65150/23-A**  
**Matrix: Water**  
**Analysis Batch: 65219**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 65150**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Hexachlorocyclopentadiene	1.97	2.41		ug/L		122	70 - 130
Indeno[1,2,3-cd]pyrene	1.97	1.91		ug/L		97	70 - 130
Isophorone	1.97	2.01		ug/L		102	70 - 130
Lindane	1.97	2.29		ug/L		116	70 - 130
Malathion	1.97	2.20		ug/L		112	70 - 130
Methoxychlor	1.97	2.15		ug/L		109	70 - 130
Metolachlor	1.97	2.39		ug/L		121	70 - 130
Molinate	1.97	2.20		ug/L		112	70 - 130
Naphthalene	1.97	1.99		ug/L		101	70 - 130
Parathion	1.97	2.21		ug/L		112	70 - 130
Pendimethalin (Penoxaline)	1.97	2.03		ug/L		103	70 - 130
Phenanthrene	1.97	1.98		ug/L		101	70 - 130
Propachlor	1.97	2.12		ug/L		108	70 - 130
Pyrene	1.97	2.15		ug/L		109	70 - 130
Simazine	1.97	2.40		ug/L		122	70 - 130
Terbacil	1.97	2.36		ug/L		120	70 - 130
Terbutylazine	1.97	2.27		ug/L		115	70 - 130
Thiobencarb	1.97	2.36		ug/L		120	70 - 130
trans-Nonachlor	1.97	1.91		ug/L		97	70 - 130
Trifluralin	1.97	1.95		ug/L		99	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Nitro-m-xylene	97		70 - 130
Perylene-d12	92		70 - 130
Triphenylphosphate	103		70 - 130

**Lab Sample ID: MRL 380-65150/22-A**  
**Matrix: Water**  
**Analysis Batch: 65219**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 65150**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
1-Methylnaphthalene	0.0986	0.111		ug/L		112	50 - 150
2,4'-DDD	0.0986	0.121		ug/L		122	50 - 150
2,4'-DDE	0.0986	0.0996		ug/L		101	50 - 150
2,4'-DDT	0.0986	0.100		ug/L		101	50 - 150
2,4-Dinitrotoluene	0.0986	0.113		ug/L		115	50 - 150
2,6-Dinitrotoluene	0.0986	0.0861	J	ug/L		87	50 - 150
2-Methylnaphthalene	0.0986	0.105		ug/L		106	50 - 150
4,4'-DDD	0.0986	0.0960	J	ug/L		97	50 - 150
4,4'-DDE	0.0986	0.0856	J	ug/L		87	50 - 150
4,4'-DDT	0.0986	0.125		ug/L		127	50 - 150
Acenaphthene	0.0986	0.0998		ug/L		101	50 - 150
Acenaphthylene	0.0986	0.0857	J	ug/L		87	50 - 150
Acetochlor	0.0493	0.0405	J	ug/L		82	50 - 150
Alachlor	0.0493	0.0551		ug/L		112	50 - 150
alpha-BHC	0.0986	0.107		ug/L		108	50 - 150
alpha-Chlordane	0.0246	<0.029		ug/L		92	50 - 150
Anthracene	0.0197	0.0193	J	ug/L		98	50 - 150

# QC Sample Results

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

Job ID: 380-72259-1

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

**Lab Sample ID: MRL 380-65150/22-A**  
**Matrix: Water**  
**Analysis Batch: 65219**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 65150**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Atrazine	0.0493	0.0541		ug/L		110	50 - 150
Benz(a)anthracene	0.0493	0.0564		ug/L		114	50 - 150
Benzo[a]pyrene	0.0197	0.0159	J	ug/L		81	50 - 150
Benzo[b]fluoranthene	0.0197	0.0179	J	ug/L		91	50 - 150
Benzo[g,h,i]perylene	0.0493	0.0404	J	ug/L		82	50 - 150
Benzo[k]fluoranthene	0.0197	0.0186	J	ug/L		94	50 - 150
beta-BHC	0.0986	0.104		ug/L		105	50 - 150
Bis(2-ethylhexyl) phthalate	0.591	0.635		ug/L		107	50 - 150
Bromacil	0.0986	0.131		ug/L		133	50 - 150
Butachlor	0.0493	0.0553		ug/L		112	50 - 150
Butylbenzylphthalate	0.148	0.157	J	ug/L		106	50 - 150
Chlorobenzilate	0.0986	0.116		ug/L		117	50 - 150
Chloroneb	0.0986	0.110		ug/L		111	50 - 150
Chlorothalonil (Draconil, Bravo)	0.0986	0.187	^3+	ug/L		190	50 - 150
Chlorpyrifos	0.0493	0.0522		ug/L		106	50 - 150
Chrysene	0.0197	0.0200		ug/L		102	50 - 150
delta-BHC	0.0986	0.101		ug/L		103	50 - 150
Di(2-ethylhexyl)adipate	0.296	0.371	J	ug/L		126	50 - 150
Dibenz(a,h)anthracene	0.0493	0.0376	J	ug/L		76	50 - 150
Diclorvos (DDVP)	0.0493	0.0872	^3+	ug/L		177	50 - 150
Dieldrin	0.0986	0.0941	J	ug/L		95	50 - 150
Diethylphthalate	0.148	0.178	J	ug/L		120	50 - 150
Dimethylphthalate	0.296	0.304	J	ug/L		103	50 - 150
Di-n-butyl phthalate	0.296	0.376	J	ug/L		127	49 - 243
Di-n-octyl phthalate	0.0986	0.112		ug/L		114	50 - 150
Endosulfan I (Alpha)	0.0986	0.0995		ug/L		101	50 - 150
Endosulfan II (Beta)	0.0986	0.152	^3+	ug/L		154	50 - 150
Endosulfan sulfate	0.0986	0.0999		ug/L		101	50 - 150
Endrin	0.0986	0.0970	J	ug/L		98	50 - 150
Endrin aldehyde	0.0986	0.0939	J	ug/L		95	50 - 150
EPTC	0.0986	0.101		ug/L		103	50 - 150
Fluoranthene	0.0493	0.0498	J	ug/L		101	50 - 150
Fluorene	0.0493	0.0505		ug/L		102	50 - 150
gamma-Chlordane	0.0246	0.0264	J	ug/L		107	50 - 150
Heptachlor	0.0394	0.0420		ug/L		107	50 - 150
Heptachlor epoxide (isomer B)	0.0493	0.0442	J	ug/L		90	50 - 150
Hexachlorobenzene	0.0493	0.0452	J	ug/L		92	50 - 150
Hexachlorocyclopentadiene	0.0493	0.0533		ug/L		108	50 - 150
Indeno[1,2,3-cd]pyrene	0.0493	0.0364	J	ug/L		74	50 - 150
Isophorone	0.0986	0.106	J	ug/L		107	50 - 150
Lindane	0.0394	0.0402		ug/L		102	50 - 150
Malathion	0.0986	0.0896	J	ug/L		91	50 - 150
Methoxychlor	0.0986	0.121		ug/L		123	50 - 150
Metolachlor	0.0493	0.0552		ug/L		112	50 - 150
Molinate	0.0986	0.106		ug/L		107	50 - 150
Naphthalene	0.0986	0.107	J	ug/L		109	50 - 150
Parathion	0.0986	0.121		ug/L		122	50 - 150
Pendimethalin (Penoxaline)	0.0986	0.109		ug/L		111	50 - 150
Phenanthrene	0.0197	0.0229	J	ug/L		116	50 - 150

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# QC Sample Results

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

Job ID: 380-72259-1

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

**Lab Sample ID: MRL 380-65150/22-A**  
**Matrix: Water**  
**Analysis Batch: 65219**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 65150**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Propachlor	0.0493	0.0817	^3+	ug/L		166	50 - 150
Pyrene	0.0493	0.0488	J	ug/L		99	50 - 150
Simazine	0.0493	0.0556		ug/L		113	50 - 150
Terbacil	0.0986	0.0996		ug/L		101	50 - 150
Terbutylazine	0.0986	0.0991		ug/L		101	50 - 150
Thiobencarb	0.0986	0.105	J	ug/L		106	50 - 150
trans-Nonachlor	0.0246	<0.026		ug/L		89	50 - 150
Trifluralin	0.0986	0.111		ug/L		113	50 - 150

Surrogate	MRL %Recovery	MRL Qualifier	Limits
2-Nitro-m-xylene	98		70 - 130
Perylene-d12	89		70 - 130
Triphenylphosphate	99		70 - 130

**Lab Sample ID: 380-72259-1 MS**  
**Matrix: Drinking Water**  
**Analysis Batch: 65219**

**Client Sample ID: MOANALUA WELLS**  
**Prep Type: Total/NA**  
**Prep Batch: 65150**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1-Methylnaphthalene	<0.099		1.97	1.95		ug/L		99	70 - 130
2,4'-DDD	<0.099		1.97	2.07		ug/L		105	70 - 130
2,4'-DDE	<0.099		1.97	2.06		ug/L		105	70 - 130
2,4'-DDT	<0.099		1.97	2.37		ug/L		121	70 - 130
2,4-Dinitrotoluene	<0.099		1.97	2.22		ug/L		113	70 - 130
2,6-Dinitrotoluene	<0.099		1.97	2.17		ug/L		110	70 - 130
2-Methylnaphthalene	<0.099		1.97	1.95		ug/L		99	70 - 130
4,4'-DDD	<0.099		1.97	2.21		ug/L		113	70 - 130
4,4'-DDE	<0.099		1.97	1.93		ug/L		98	70 - 130
4,4'-DDT	<0.099		1.97	2.26		ug/L		115	70 - 130
Acenaphthene	<0.099		1.97	2.06		ug/L		105	70 - 130
Acenaphthylene	<0.099		1.97	2.11		ug/L		107	70 - 130
Acetochlor	<0.099		1.97	1.98		ug/L		101	70 - 130
Alachlor	<0.050		1.97	2.31		ug/L		118	70 - 130
alpha-BHC	<0.099		1.97	2.35		ug/L		119	70 - 130
alpha-Chlordane	<0.050		1.97	2.00		ug/L		102	70 - 130
Anthracene	<0.020		1.97	2.05		ug/L		104	70 - 130
Atrazine	<0.050	F1	1.97	2.72	F1	ug/L		138	70 - 130
Benz(a)anthracene	<0.050		1.97	2.28		ug/L		116	70 - 130
Benzo[a]pyrene	<0.020		1.97	1.91		ug/L		97	70 - 130
Benzo[b]fluoranthene	<0.020		1.97	1.97		ug/L		100	70 - 130
Benzo[g,h,i]perylene	<0.050		1.97	1.91		ug/L		97	70 - 130
Benzo[k]fluoranthene	<0.020		1.97	2.03		ug/L		103	70 - 130
beta-BHC	<0.099		1.97	2.56		ug/L		130	70 - 130
Bis(2-ethylhexyl) phthalate	<0.59		1.97	1.97		ug/L		100	70 - 130
Bromacil	<0.099		1.97	2.31		ug/L		118	70 - 130
Butachlor	<0.050	F1	1.97	2.62	F1	ug/L		133	70 - 130
Butylbenzylphthalate	<0.50		1.97	2.45		ug/L		125	70 - 130
Chlorobenzilate	<0.099		1.97	2.29		ug/L		117	70 - 130

# QC Sample Results

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

Job ID: 380-72259-1

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

**Lab Sample ID: 380-72259-1 MS**  
**Matrix: Drinking Water**  
**Analysis Batch: 65219**

**Client Sample ID: MOANALUA WELLS**  
**Prep Type: Total/NA**  
**Prep Batch: 65150**

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier	Added	Result	Qualifier				
Chloroneb	<0.099		1.97	2.14		ug/L		109	70 - 130
Chlorothalonil (Draconil, Bravo)	<0.099	^3+	1.97	2.06		ug/L		105	70 - 130
Chlorpyrifos	<0.050		1.97	2.23		ug/L		113	70 - 130
Chrysene	<0.020		1.97	2.11		ug/L		107	70 - 130
delta-BHC	<0.099		1.97	2.11		ug/L		108	70 - 130
Di(2-ethylhexyl)adipate	<0.59		1.97	2.39		ug/L		122	70 - 130
Dibenz(a,h)anthracene	<0.050		1.97	1.77		ug/L		90	70 - 130
Diclorvos (DDVP)	<0.050	^3+	1.97	1.81		ug/L		92	70 - 130
Dieldrin	<0.20		1.97	2.09		ug/L		106	70 - 130
Diethylphthalate	<0.50		1.97	2.50		ug/L		127	70 - 130
Dimethylphthalate	<0.50		1.97	2.27		ug/L		115	70 - 130
Di-n-butyl phthalate	<0.99		3.93	4.26		ug/L		108	70 - 130
Di-n-octyl phthalate	<0.099		1.97	1.84		ug/L		93	70 - 130
Endosulfan I (Alpha)	<0.099		1.97	2.10		ug/L		107	70 - 130
Endosulfan II (Beta)	<0.099	^3+	1.97	2.35		ug/L		120	70 - 130
Endosulfan sulfate	<0.099		1.97	2.28		ug/L		116	70 - 130
Endrin	<0.099		1.97	2.22		ug/L		113	70 - 130
Endrin aldehyde	<0.099		1.97	1.88		ug/L		96	70 - 130
EPTC	<0.099		1.97	2.09		ug/L		106	70 - 130
Fluoranthene	<0.099		1.97	2.24		ug/L		114	70 - 130
Fluorene	<0.050		1.97	2.23		ug/L		113	70 - 130
gamma-Chlordane	<0.050		1.97	1.97		ug/L		100	70 - 130
Heptachlor	<0.040		1.97	2.31		ug/L		118	70 - 130
Heptachlor epoxide (isomer B)	<0.050		1.97	1.98		ug/L		101	70 - 130
Hexachlorobenzene	<0.050		1.97	2.07		ug/L		105	70 - 130
Hexachlorocyclopentadiene	<0.050		1.97	2.27		ug/L		116	70 - 130
Indeno[1,2,3-cd]pyrene	<0.050		1.97	1.83		ug/L		93	70 - 130
Isophorone	<0.50		1.97	1.94		ug/L		99	70 - 130
Lindane	<0.040		1.97	2.47		ug/L		126	70 - 130
Malathion	<0.099		1.97	2.30		ug/L		117	70 - 130
Methoxychlor	<0.099		1.97	2.20		ug/L		112	70 - 130
Metolachlor	<0.050		1.97	2.47		ug/L		126	70 - 130
Molinate	<0.099		1.97	2.31		ug/L		117	70 - 130
Naphthalene	<0.30		1.97	1.88		ug/L		96	70 - 130
Parathion	<0.099		1.97	2.37		ug/L		121	70 - 130
Pendimethalin (Penoxaline)	<0.099		1.97	2.13		ug/L		109	70 - 130
Phenanthrene	<0.040		1.97	2.01		ug/L		102	70 - 130
Propachlor	<0.050	^3+	1.97	2.33		ug/L		119	70 - 130
Pyrene	<0.050		1.97	2.26		ug/L		115	70 - 130
Simazine	<0.050	F1	1.97	2.75	F1	ug/L		140	70 - 130
Terbacil	<0.099		1.97	2.53		ug/L		129	70 - 130
Terbutylazine	<0.099	F1	1.97	2.59	F1	ug/L		132	70 - 130
Thiobencarb	<0.20		1.97	2.43		ug/L		124	70 - 130
trans-Nonachlor	<0.050		1.97	1.89		ug/L		96	70 - 130
Trifluralin	<0.099		1.97	2.13		ug/L		108	70 - 130

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
2-Nitro-m-xylene	92		70 - 130

# QC Sample Results

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

Job ID: 380-72259-1

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

**Lab Sample ID: 380-72259-1 MS**  
**Matrix: Drinking Water**  
**Analysis Batch: 65219**

**Client Sample ID: MOANALUA WELLS**  
**Prep Type: Total/NA**  
**Prep Batch: 65150**

Surrogate	%Recovery	MS MS Qualifier	Limits
Perylene-d12	91		70 - 130
Triphenylphosphate	107		70 - 130

**Lab Sample ID: 380-72262-B-2-A DU**  
**Matrix: Water**  
**Analysis Batch: 65219**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 65150**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
1-Methylnaphthalene	<0.098		<0.099		ug/L		NC	20
2,4'-DDD	<0.098		<0.099		ug/L		NC	20
2,4'-DDE	<0.098		<0.099		ug/L		NC	20
2,4'-DDT	<0.098		<0.099		ug/L		NC	20
2,4-Dinitrotoluene	<0.098		<0.099		ug/L		NC	20
2,6-Dinitrotoluene	<0.098		<0.099		ug/L		NC	20
2-Methylnaphthalene	<0.098		<0.099		ug/L		NC	20
4,4'-DDD	<0.098		<0.099		ug/L		NC	20
4,4'-DDE	<0.098		<0.099		ug/L		NC	20
4,4'-DDT	<0.098		<0.099		ug/L		NC	20
Acenaphthene	<0.098		<0.099		ug/L		NC	20
Acenaphthylene	<0.098		<0.099		ug/L		NC	20
Acetochlor	<0.098		<0.099		ug/L		NC	20
Alachlor	<0.049		<0.049		ug/L		NC	20
alpha-BHC	<0.098		<0.099		ug/L		NC	20
alpha-Chlordane	<0.049		<0.049		ug/L		NC	20
Anthracene	<0.020		<0.020		ug/L		NC	20
Atrazine	<0.049		<0.049		ug/L		NC	20
Benz(a)anthracene	<0.049		<0.049		ug/L		NC	20
Benzo[a]pyrene	<0.020		<0.020		ug/L		NC	20
Benzo[b]fluoranthene	<0.020		<0.020		ug/L		NC	20
Benzo[g,h,i]perylene	<0.049		<0.049		ug/L		NC	20
Benzo[k]fluoranthene	<0.020		<0.020		ug/L		NC	20
beta-BHC	<0.098		<0.099		ug/L		NC	20
Bis(2-ethylhexyl) phthalate	<0.59		<0.59		ug/L		NC	20
Bromacil	<0.098		<0.099		ug/L		NC	20
Butachlor	<0.049		<0.049		ug/L		NC	20
Butylbenzylphthalate	<0.49		<0.49		ug/L		NC	20
Chlorobenzilate	<0.098		<0.099		ug/L		NC	20
Chloroneb	<0.098		<0.099		ug/L		NC	20
Chlorothalonil (Draconil, Bravo)	<0.098	^3+	<0.099		ug/L		NC	20
Chlorpyrifos	<0.049		<0.049		ug/L		NC	20
Chrysene	<0.020		<0.020		ug/L		NC	20
delta-BHC	<0.098		<0.099		ug/L		NC	20
Di(2-ethylhexyl)adipate	<0.59		<0.59		ug/L		NC	20
Dibenz(a,h)anthracene	<0.049		<0.049		ug/L		NC	20
Diclorvos (DDVP)	<0.049	^3+	<0.049		ug/L		NC	20
Dieldrin	<0.20		<0.20		ug/L		NC	20
Diethylphthalate	<0.49		<0.49		ug/L		NC	20
Dimethylphthalate	<0.49		<0.49		ug/L		NC	20

# QC Sample Results

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

Job ID: 380-72259-1

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

**Lab Sample ID: 380-72262-B-2-A DU**  
**Matrix: Water**  
**Analysis Batch: 65219**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 65150**

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Di-n-butyl phthalate	<0.98		<0.99		ug/L		NC	20
Di-n-octyl phthalate	<0.098		<0.099		ug/L		NC	20
Endosulfan I (Alpha)	<0.098		<0.099		ug/L		NC	20
Endosulfan II (Beta)	<0.098	^3+	<0.099		ug/L		NC	20
Endosulfan sulfate	<0.098		<0.099		ug/L		NC	20
Endrin	<0.098		<0.099		ug/L		NC	20
Endrin aldehyde	<0.098		<0.099		ug/L		NC	20
EPTC	<0.098		<0.099		ug/L		NC	20
Fluoranthene	<0.098		<0.099		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		<0.040		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		<0.040		ug/L		NC	20
Malathion	<0.098		<0.099		ug/L		NC	20
Methoxychlor	<0.098		<0.099		ug/L		NC	20
Metolachlor	<0.049		<0.049		ug/L		NC	20
Molinate	<0.098		<0.099		ug/L		NC	20
Naphthalene	<0.29		<0.30		ug/L		NC	20
Parathion	<0.098		<0.099		ug/L		NC	20
Pendimethalin (Penoxaline)	<0.098		<0.099		ug/L		NC	20
Phenanthrene	<0.039		<0.040		ug/L		NC	20
Propachlor	<0.049	^3+	<0.049		ug/L		NC	20
Pyrene	<0.049		<0.049		ug/L		NC	20
Simazine	<0.049		<0.049		ug/L		NC	20
Terbacil	<0.098		<0.099		ug/L		NC	20
Terbutylazine	<0.098		<0.099		ug/L		NC	20
Thiobencarb	<0.20		<0.20		ug/L		NC	20
Total Permethrin (mixed isomers)	<0.20		<0.20		ug/L		NC	20
trans-Nonachlor	<0.049		<0.049		ug/L		NC	20
Trifluralin	<0.098		<0.099		ug/L		NC	20

Surrogate	DU	DU	Limits
	%Recovery	Qualifier	
2-Nitro-m-xylene	100		70 - 130
Perylene-d12	89		70 - 130
Triphenylphosphate	121		70 - 130

## Method: 8015B GRO LL - Gasoline Range Organics - (GC)

**Lab Sample ID: MB 570-388050/6**  
**Matrix: Water**  
**Analysis Batch: 388050**

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

Analyte	MB	MB	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
GRO (C6-C10)	<10		10	ug/L			11/30/23 11:44	1

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-72259-1

## Method: 8015B GRO LL - Gasoline Range Organics - (GC) (Continued)

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	74		38 - 134		11/30/23 11:44	1

**Lab Sample ID: LCS 570-388050/4**  
**Matrix: Water**  
**Analysis Batch: 388050**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (C4-C13)	389	391		ug/L		101	78 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	103		38 - 134

**Lab Sample ID: LCSD 570-388050/5**  
**Matrix: Water**  
**Analysis Batch: 388050**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (C4-C13)	389	391		ug/L		101	78 - 120	0	10

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	108		38 - 134

**Lab Sample ID: MRL 570-388050/3**  
**Matrix: Water**  
**Analysis Batch: 388050**

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (C4-C13)	10.0	11.5		ug/L		115	50 - 150

Surrogate	MRL %Recovery	MRL Qualifier	Limits
4-Bromofluorobenzene (Surr)	69		38 - 134

**Lab Sample ID: 380-72259-1 MS**  
**Matrix: Drinking Water**  
**Analysis Batch: 388050**

**Client Sample ID: MOANALUA WELLS**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (C4-C13)	<10		389	401		ug/L		103	68 - 122

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	104		38 - 134

# QC Sample Results

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

Job ID: 380-72259-1

## Method: 8015B GRO LL - Gasoline Range Organics - (GC) (Continued)

**Lab Sample ID: 380-72259-1 MSD**  
**Matrix: Drinking Water**  
**Analysis Batch: 388050**

**Client Sample ID: MOANALUA WELLS**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (C4-C13)	<10		389	405		ug/L		104	68 - 122	1	18
<b>Surrogate</b>	<b>%Recovery</b>	<b>MSD Qualifier</b>	<b>MSD Limits</b>								
4-Bromofluorobenzene (Surr)	86		38 - 134								

## Method: 8015B - Diesel Range Organics (DRO) (GC) Low Level

**Lab Sample ID: MB 570-386928/1-A**  
**Matrix: Water**  
**Analysis Batch: 387700**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 386928**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (C10-C24)	<25		25	ug/L		11/27/23 13:33	11/29/23 16:06	1
Motor Oil Range Organics [C24-C36]	<25		25	ug/L		11/27/23 13:33	11/29/23 16:06	1
C8-C18	<25		25	ug/L		11/27/23 13:33	11/29/23 16:06	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>MB Limits</b>	<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>		
n-Octacosane (Surr)	113		60 - 130	11/27/23 13:33	11/29/23 16:06	1		

**Lab Sample ID: LCS 570-386928/2-A**  
**Matrix: Water**  
**Analysis Batch: 387700**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 386928**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	RPD
C10-C28	1600	1460		ug/L		91	56 - 127	
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>LCS Limits</b>					
n-Octacosane (Surr)	105		60 - 130					

**Lab Sample ID: LCSD 570-386928/3-A**  
**Matrix: Water**  
**Analysis Batch: 387700**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 386928**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C10-C28	1600	1390		ug/L		87	56 - 127	5	23
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>LCSD Limits</b>						
n-Octacosane (Surr)	104		60 - 130						

## Method: 8015B - Nonhalogenated Organic Compounds - Direct Injection (GC)

**Lab Sample ID: MB 570-387901/3**  
**Matrix: Water**  
**Analysis Batch: 387901**

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

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Ethanol	<0.10		0.10	mg/L			11/29/23 19:53	1

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# QC Sample Results

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

Job ID: 380-72259-1

## Method: 8015B - Nonhalogenated Organic Compounds - Direct Injection (GC) (Continued)

**Lab Sample ID: MB 570-387901/3**  
**Matrix: Water**  
**Analysis Batch: 387901**

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

	<b>MB</b>	<b>MB</b>				
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>	<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Hexafluoro-2-propanol (Surr)	94		54 - 120		11/29/23 19:53	1

**Lab Sample ID: LCS 570-387901/4**  
**Matrix: Water**  
**Analysis Batch: 387901**

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

<b>Analyte</b>	<b>Spike Added</b>	<b>LCS Result</b>	<b>LCS Qualifier</b>	<b>Unit</b>	<b>D</b>	<b>%Rec</b>	<b>%Rec Limits</b>		
Ethanol	2.00	1.71		mg/L		85	78 - 131		

	<b>LCS</b>	<b>LCS</b>		
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>	
Hexafluoro-2-propanol (Surr)	98		54 - 120	

**Lab Sample ID: LCSD 570-387901/5**  
**Matrix: Water**  
**Analysis Batch: 387901**

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

<b>Analyte</b>	<b>Spike Added</b>	<b>LCSD Result</b>	<b>LCSD Qualifier</b>	<b>Unit</b>	<b>D</b>	<b>%Rec</b>	<b>%Rec Limits</b>	<b>RPD</b>	<b>Limit</b>
Ethanol	2.00	1.84		mg/L		92	78 - 131	8	25

	<b>LCSD</b>	<b>LCSD</b>		
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>	
Hexafluoro-2-propanol (Surr)	98		54 - 120	

**Lab Sample ID: MRL 570-387901/6**  
**Matrix: Water**  
**Analysis Batch: 387901**

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

<b>Analyte</b>	<b>Spike Added</b>	<b>MRL Result</b>	<b>MRL Qualifier</b>	<b>Unit</b>	<b>D</b>	<b>%Rec</b>	<b>%Rec Limits</b>		
Ethanol	0.100	0.111		mg/L		111	50 - 150		

	<b>MRL</b>	<b>MRL</b>		
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>	
Hexafluoro-2-propanol (Surr)	105		54 - 120	

**Lab Sample ID: 380-71845-AK-1 MS**  
**Matrix: Water**  
**Analysis Batch: 387901**

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

<b>Analyte</b>	<b>Sample Result</b>	<b>Sample Qualifier</b>	<b>Spike Added</b>	<b>MS Result</b>	<b>MS Qualifier</b>	<b>Unit</b>	<b>D</b>	<b>%Rec</b>	<b>%Rec Limits</b>
Ethanol	<0.10		2.00	1.84		mg/L		92	20 - 173

	<b>MS</b>	<b>MS</b>		
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>	
Hexafluoro-2-propanol (Surr)	89		54 - 120	



# QC Sample Results

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

Job ID: 380-72259-1

## Method: 8015B - Nonhalogenated Organic Compounds - Direct Injection (GC) (Continued)

**Lab Sample ID: 380-71845-AK-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 387901**

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ethanol	<0.10		2.00	1.64		mg/L		82	20 - 173	12	21
<b>Surrogate</b>	<b>MSD %Recovery</b>	<b>MSD Qualifier</b>	<b>Limits</b>								
Hexafluoro-2-propanol (Surr)	72		54 - 120								

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

**Lab Sample ID: MBL 380-66506/21-A**  
**Matrix: Water**  
**Analysis Batch: 66901**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 66506**

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosfluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0	ng/L		12/05/23 08:54	12/07/23 17:58	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0	ng/L		12/05/23 08:54	12/07/23 17:58	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		12/05/23 08:54	12/07/23 17:58	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		12/05/23 08:54	12/07/23 17:58	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		12/05/23 08:54	12/07/23 17:58	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		12/05/23 08:54	12/07/23 17:58	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		12/05/23 08:54	12/07/23 17:58	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		12/05/23 08:54	12/07/23 17:58	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		12/05/23 08:54	12/07/23 17:58	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		12/05/23 08:54	12/07/23 17:58	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		12/05/23 08:54	12/07/23 17:58	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		12/05/23 08:54	12/07/23 17:58	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		12/05/23 08:54	12/07/23 17:58	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		12/05/23 08:54	12/07/23 17:58	1
Perfluorobutanoic acid (PFBA)	<0.69		2.0	ng/L		12/05/23 08:54	12/07/23 17:58	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<0.38		2.0	ng/L		12/05/23 08:54	12/07/23 17:58	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<0.37		2.0	ng/L		12/05/23 08:54	12/07/23 17:58	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<0.48		2.0	ng/L		12/05/23 08:54	12/07/23 17:58	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.47		2.0	ng/L		12/05/23 08:54	12/07/23 17:58	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.25		2.0	ng/L		12/05/23 08:54	12/07/23 17:58	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.46		2.0	ng/L		12/05/23 08:54	12/07/23 17:58	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.15		2.0	ng/L		12/05/23 08:54	12/07/23 17:58	1
Perfluoropentanoic acid (PFPeA)	<0.38		2.0	ng/L		12/05/23 08:54	12/07/23 17:58	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.36		2.0	ng/L		12/05/23 08:54	12/07/23 17:58	1
Perfluoropentanesulfonic acid (PFPeS)	<0.39		2.0	ng/L		12/05/23 08:54	12/07/23 17:58	1

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# QC Sample Results

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

Job ID: 380-72259-1

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

Isotope Dilution	MBL MBL		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C3 HFPO-DA	72		50 - 200	12/05/23 08:54	12/07/23 17:58	1
13C6 PFDA	92		50 - 200	12/05/23 08:54	12/07/23 17:58	1
13C5 PFHxA	87		50 - 200	12/05/23 08:54	12/07/23 17:58	1
13C4 PFHpA	87		50 - 200	12/05/23 08:54	12/07/23 17:58	1
13C8 PFOA	89		50 - 200	12/05/23 08:54	12/07/23 17:58	1
13C9 PFNA	91		50 - 200	12/05/23 08:54	12/07/23 17:58	1
13C7 PFUnA	89		50 - 200	12/05/23 08:54	12/07/23 17:58	1
13C2 PFDoA	91		50 - 200	12/05/23 08:54	12/07/23 17:58	1
13C4 PFBA	89		50 - 200	12/05/23 08:54	12/07/23 17:58	1
13C5 PFPeA	92		50 - 200	12/05/23 08:54	12/07/23 17:58	1
13C3 PFBS	90		50 - 200	12/05/23 08:54	12/07/23 17:58	1
13C3 PFHxS	91		50 - 200	12/05/23 08:54	12/07/23 17:58	1
13C8 PFOS	94		50 - 200	12/05/23 08:54	12/07/23 17:58	1
13C2-4:2-FTS	104		50 - 200	12/05/23 08:54	12/07/23 17:58	1
13C2-6:2-FTS	105		50 - 200	12/05/23 08:54	12/07/23 17:58	1
13C2-8:2-FTS	127		50 - 200	12/05/23 08:54	12/07/23 17:58	1

**Lab Sample ID: LCS 380-66506/23-A**  
**Matrix: Water**  
**Analysis Batch: 66901**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 66506**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	60.1	59.9		ng/L		100	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	60.1	51.1		ng/L		85	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	60.1	56.9		ng/L		95	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	60.1	54.1		ng/L		90	70 - 130
Perfluorobutanesulfonic acid (PFBS)	60.1	58.4		ng/L		97	70 - 130
Perfluorodecanoic acid (PFDA)	60.1	57.6		ng/L		96	70 - 130
Perfluorododecanoic acid (PFDoA)	60.1	57.8		ng/L		96	70 - 130
Perfluoroheptanoic acid (PFHpA)	60.1	56.8		ng/L		94	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	60.1	56.6		ng/L		94	70 - 130
Perfluorohexanoic acid (PFHxA)	60.1	57.2		ng/L		95	70 - 130
Perfluorononanoic acid (PFNA)	60.1	59.4		ng/L		99	70 - 130
Perfluorooctanesulfonic acid (PFOS)	60.1	57.2		ng/L		95	70 - 130
Perfluorooctanoic acid (PFOA)	60.1	56.7		ng/L		94	70 - 130
Perfluoroundecanoic acid (PFUnA)	60.1	54.9		ng/L		91	70 - 130
Perfluorobutanoic acid (PFBA)	60.1	55.6		ng/L		93	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	60.1	57.9		ng/L		96	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	60.1	61.7		ng/L		103	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	60.1	54.3		ng/L		90	70 - 130

# QC Sample Results

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

Job ID: 380-72259-1

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

**Lab Sample ID: LCS 380-66506/23-A**  
**Matrix: Water**  
**Analysis Batch: 66901**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 66506**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nonafluoro-3,6-dioxahexanoic acid (NFDHA)	60.1	55.7		ng/L		93	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	60.1	55.9		ng/L		93	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	60.1	59.2		ng/L		98	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	60.1	57.1		ng/L		95	70 - 130
Perfluoropentanoic acid (PFPeA)	60.1	57.8		ng/L		96	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	60.1	57.8		ng/L		96	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	60.1	55.3		ng/L		92	70 - 130

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	103		50 - 200
13C6 PFDA	108		50 - 200
13C5 PFHxA	108		50 - 200
13C4 PFHpA	105		50 - 200
13C8 PFOA	105		50 - 200
13C9 PFNA	103		50 - 200
13C7 PFUnA	107		50 - 200
13C2 PFDoA	107		50 - 200
13C4 PFBA	106		50 - 200
13C5 PFPeA	109		50 - 200
13C3 PFBS	103		50 - 200
13C3 PFHxS	105		50 - 200
13C8 PFOS	105		50 - 200
13C2-4:2-FTS	122		50 - 200
13C2-6:2-FTS	123		50 - 200
13C2-8:2-FTS	136		50 - 200

**Lab Sample ID: LCSD 380-66506/24-A**  
**Matrix: Water**  
**Analysis Batch: 66901**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 66506**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	
								RPD	Limit
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	60.1	57.2		ng/L		95	70 - 130	5	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	60.1	51.4		ng/L		85	70 - 130	1	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	60.1	57.2		ng/L		95	70 - 130	1	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	60.1	52.2		ng/L		87	70 - 130	4	30
Perfluorobutanesulfonic acid (PFBS)	60.1	54.1		ng/L		90	70 - 130	8	30
Perfluorodecanoic acid (PFDA)	60.1	56.8		ng/L		95	70 - 130	1	30
Perfluorododecanoic acid (PFDoA)	60.1	55.7		ng/L		93	70 - 130	4	30

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# QC Sample Results

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

Job ID: 380-72259-1

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

**Lab Sample ID: LCSD 380-66506/24-A**  
**Matrix: Water**  
**Analysis Batch: 66901**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 66506**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluoroheptanoic acid (PFHpA)	60.1	55.8		ng/L		93	70 - 130	2	30
Perfluorohexanesulfonic acid (PFHxS)	60.1	55.5		ng/L		92	70 - 130	2	30
Perfluorohexanoic acid (PFHxA)	60.1	55.1		ng/L		92	70 - 130	4	30
Perfluorononanoic acid (PFNA)	60.1	56.6		ng/L		94	70 - 130	5	30
Perfluorooctanesulfonic acid (PFOS)	60.1	57.5		ng/L		96	70 - 130	1	30
Perfluorooctanoic acid (PFOA)	60.1	54.5		ng/L		91	70 - 130	4	30
Perfluoroundecanoic acid (PFUnA)	60.1	57.1		ng/L		95	70 - 130	4	30
Perfluorobutanoic acid (PFBA)	60.1	55.2		ng/L		92	70 - 130	1	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	60.1	60.0		ng/L		100	70 - 130	4	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	60.1	57.1		ng/L		95	70 - 130	8	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	60.1	57.3		ng/L		95	70 - 130	5	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	60.1	45.4		ng/L		76	70 - 130	20	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	60.1	51.9		ng/L		86	70 - 130	7	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	60.1	55.1		ng/L		92	70 - 130	7	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	60.1	50.4		ng/L		84	70 - 130	12	30
Perfluoropentanoic acid (PFPeA)	60.1	51.0		ng/L		85	70 - 130	12	30
Perfluoroheptanesulfonic acid (PFHpS)	60.1	56.7		ng/L		94	70 - 130	2	30
Perfluoropentanesulfonic acid (PFPeS)	60.1	53.6		ng/L		89	70 - 130	3	30

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	LCSD Limits
13C3 HFPO-DA	100		50 - 200
13C6 PFDA	113		50 - 200
13C5 PFHxA	104		50 - 200
13C4 PFHpA	101		50 - 200
13C8 PFOA	104		50 - 200
13C9 PFNA	108		50 - 200
13C7 PFUnA	107		50 - 200
13C2 PFDoA	109		50 - 200
13C4 PFBA	107		50 - 200
13C5 PFPeA	120		50 - 200
13C3 PFBS	109		50 - 200
13C3 PFHxS	108		50 - 200
13C8 PFOS	108		50 - 200
13C2-4:2-FTS	129		50 - 200
13C2-6:2-FTS	120		50 - 200
13C2-8:2-FTS	146		50 - 200

# QC Sample Results

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

Job ID: 380-72259-1

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

**Lab Sample ID: MRL 380-66506/22-A**  
**Matrix: Water**  
**Analysis Batch: 66901**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 66506**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.00	1.87	J	ng/L		93	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.00	1.59	J	ng/L		79	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	1.70	J	ng/L		85	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	1.93	J	ng/L		96	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.00	1.98	J	ng/L		99	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	2.04	J	ng/L		102	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	1.75	J	ng/L		87	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	1.86	J	ng/L		93	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.00	1.88	J	ng/L		94	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	1.95	J	ng/L		97	50 - 150
Perfluorononanoic acid (PFNA)	2.00	2.00	J	ng/L		100	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.00	1.88	J	ng/L		94	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	1.91	J	ng/L		95	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	1.82	J	ng/L		91	50 - 150
Perfluorobutanoic acid (PFBA)	2.00	1.84	J	ng/L		92	50 - 150
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	2.00	2.07	J	ng/L		103	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	2.00	2.15	J	ng/L		107	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	2.00	2.11	J	ng/L		105	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.00	1.67	J	ng/L		83	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	2.00	2.07	J	ng/L		103	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.00	1.90	J	ng/L		95	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.00	1.70	J	ng/L		85	50 - 150
Perfluoropentanoic acid (PFPeA)	2.00	1.95	J	ng/L		97	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	2.00	1.89	J	ng/L		94	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	2.00	1.89	J	ng/L		94	50 - 150

Isotope Dilution	MRL %Recovery	MRL Qualifier	MRL Limits
13C3 HFPO-DA	94		50 - 200
13C6 PFDA	104		50 - 200
13C5 PFHxA	102		50 - 200
13C4 PFHpA	104		50 - 200
13C8 PFOA	105		50 - 200
13C9 PFNA	104		50 - 200

# QC Sample Results

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

Job ID: 380-72259-1

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

**Lab Sample ID: MRL 380-66506/22-A**  
**Matrix: Water**  
**Analysis Batch: 66901**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 66506**

<i>Isotope Dilution</i>	<i>MRL %Recovery</i>	<i>MRL Qualifier</i>	<i>Limits</i>
13C7 PFUnA	100		50 - 200
13C2 PFDoA	100		50 - 200
13C4 PFBA	105		50 - 200
13C5 PFPeA	115		50 - 200
13C3 PFBS	97		50 - 200
13C3 PFHxS	101		50 - 200
13C8 PFOS	104		50 - 200
13C2-4:2-FTS	117		50 - 200
13C2-6:2-FTS	120		50 - 200
13C2-8:2-FTS	123		50 - 200

**Lab Sample ID: 380-72663-B-1-A MS**  
**Matrix: Water**  
**Analysis Batch: 66901**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 66506**

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MS Result</i>	<i>MS Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		60.4	59.5		ng/L		99	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		60.4	53.5		ng/L		89	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		60.4	64.0		ng/L		106	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		60.4	52.6		ng/L		87	70 - 130
Perfluorobutanesulfonic acid (PFBS)	10		60.4	72.2		ng/L		103	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		60.4	59.6		ng/L		98	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		60.4	59.6		ng/L		99	70 - 130
Perfluoroheptanoic acid (PFHpA)	3.9		60.4	64.0		ng/L		100	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	3.9		60.4	65.5		ng/L		102	70 - 130
Perfluorohexanoic acid (PFHxA)	26		60.4	92.6		ng/L		111	70 - 130
Perfluorononanoic acid (PFNA)	<2.0		60.4	59.1		ng/L		97	70 - 130
Perfluorooctanesulfonic acid (PFOS)	2.3		60.4	61.8		ng/L		99	70 - 130
Perfluorooctanoic acid (PFOA)	8.0		60.4	67.5		ng/L		99	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		60.4	56.8		ng/L		94	70 - 130
Perfluorobutanoic acid (PFBA)	5.9		60.4	66.6		ng/L		100	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		60.4	63.0		ng/L		104	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		60.4	61.7		ng/L		102	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	3.7		60.4	63.8		ng/L		100	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		60.4	63.6		ng/L		105	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		60.4	62.9		ng/L		104	70 - 130

# QC Sample Results

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

Job ID: 380-72259-1

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

**Lab Sample ID: 380-72663-B-1-A MS**  
**Matrix: Water**  
**Analysis Batch: 66901**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 66506**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0	F1	60.4	144	F1	ng/L		238	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0	*5+	60.4	68.2	*5+	ng/L		113	70 - 130
Perfluoropentanoic acid (PFPeA)	17	*5+	60.4	67.7	*5+	ng/L		84	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		60.4	58.4		ng/L		97	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	<2.0		60.4	61.9		ng/L		102	70 - 130
<b>MS MS</b>									
<b>Isotope Dilution</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
13C3 HFPO-DA	102		50 - 200						
13C6 PFDA	98		50 - 200						
13C5 PFHxA	80		50 - 200						
13C4 PFHpA	81		50 - 200						
13C8 PFOA	90		50 - 200						
13C9 PFNA	97		50 - 200						
13C7 PFUnA	93		50 - 200						
13C2 PFDoA	92		50 - 200						
13C4 PFBA	85		50 - 200						
13C5 PFPeA	272	*5+	50 - 200						
13C3 PFBS	88		50 - 200						
13C3 PFHxS	96		50 - 200						
13C8 PFOS	101		50 - 200						
13C2-4:2-FTS	148		50 - 200						
13C2-6:2-FTS	150		50 - 200						
13C2-8:2-FTS	181		50 - 200						

**Lab Sample ID: 380-72663-C-1-A MSD**  
**Matrix: Water**  
**Analysis Batch: 66901**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 66506**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		60.9	57.8		ng/L		95	70 - 130	3	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		60.9	50.9		ng/L		84	70 - 130	5	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		60.9	62.7		ng/L		103	70 - 130	2	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		60.9	51.9		ng/L		85	70 - 130	1	30
Perfluorobutanesulfonic acid (PFBS)	10		60.9	65.8		ng/L		92	70 - 130	9	30
Perfluorodecanoic acid (PFDA)	<2.0		60.9	61.6		ng/L		101	70 - 130	3	30
Perfluorododecanoic acid (PFDoA)	<2.0		60.9	60.8		ng/L		100	70 - 130	2	30
Perfluoroheptanoic acid (PFHpA)	3.9		60.9	65.9		ng/L		102	70 - 130	3	30
Perfluorohexanesulfonic acid (PFHxS)	3.9		60.9	65.0		ng/L		100	70 - 130	1	30
Perfluorohexanoic acid (PFHxA)	26		60.9	87.1		ng/L		101	70 - 130	6	30

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# QC Sample Results

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

Job ID: 380-72259-1

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

**Lab Sample ID: 380-72663-C-1-A MSD**  
**Matrix: Water**  
**Analysis Batch: 66901**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 66506**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorononanoic acid (PFNA)	<2.0		60.9	59.4		ng/L		97	70 - 130	0	30
Perfluorooctanesulfonic acid (PFOS)	2.3		60.9	65.8		ng/L		104	70 - 130	6	30
Perfluorooctanoic acid (PFOA)	8.0		60.9	68.4		ng/L		99	70 - 130	1	30
Perfluoroundecanoic acid (PFUnA)	<2.0		60.9	57.1		ng/L		94	70 - 130	1	30
Perfluorobutanoic acid (PFBA)	5.9		60.9	67.2		ng/L		101	70 - 130	1	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		60.9	59.7	*5+	ng/L		98	70 - 130	5	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		60.9	63.7		ng/L		105	70 - 130	3	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	3.7		60.9	62.7		ng/L		97	70 - 130	2	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		60.9	51.3		ng/L		84	70 - 130	21	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		60.9	60.3		ng/L		99	70 - 130	4	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0	F1	60.9	144	F1	ng/L		236	70 - 130	0	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0	*5+	60.9	66.3	*5+	ng/L		109	70 - 130	3	30
Perfluoropentanoic acid (PFPeA)	17	*5+	60.9	70.6	*5+	ng/L		88	70 - 130	4	30
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		60.9	58.5		ng/L		96	70 - 130	0	30
Perfluoropentanesulfonic acid (PFPeS)	<2.0		60.9	60.3		ng/L		98	70 - 130	3	30

Isotope Dilution	MSD %Recovery	MSD Qualifier	Limits
13C3 HFPO-DA	103		50 - 200
13C6 PFDA	90		50 - 200
13C5 PFHxA	80		50 - 200
13C4 PFHpA	80		50 - 200
13C8 PFOA	89		50 - 200
13C9 PFNA	91		50 - 200
13C7 PFUnA	85		50 - 200
13C2 PFDoA	80		50 - 200
13C4 PFBA	93		50 - 200
13C5 PFPeA	307	*5+	50 - 200
13C3 PFBS	93		50 - 200
13C3 PFHxS	102		50 - 200
13C8 PFOS	104		50 - 200
13C2-4:2-FTS	154		50 - 200
13C2-6:2-FTS	185		50 - 200
13C2-8:2-FTS	202	*5+	50 - 200

**Lab Sample ID: MBL 380-67260/21-A**  
**Matrix: Water**  
**Analysis Batch: 67359**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 67260**

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3OUdS)	<0.30		2.0	ng/L		12/10/23 14:20	12/12/23 01:13	1

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# QC Sample Results

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

Job ID: 380-72259-1

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

**Lab Sample ID: MBL 380-67260/21-A**  
**Matrix: Water**  
**Analysis Batch: 67359**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 67260**

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0	ng/L		12/10/23 14:20	12/12/23 01:13	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		12/10/23 14:20	12/12/23 01:13	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		12/10/23 14:20	12/12/23 01:13	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		12/10/23 14:20	12/12/23 01:13	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		12/10/23 14:20	12/12/23 01:13	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		12/10/23 14:20	12/12/23 01:13	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		12/10/23 14:20	12/12/23 01:13	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		12/10/23 14:20	12/12/23 01:13	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		12/10/23 14:20	12/12/23 01:13	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		12/10/23 14:20	12/12/23 01:13	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		12/10/23 14:20	12/12/23 01:13	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		12/10/23 14:20	12/12/23 01:13	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		12/10/23 14:20	12/12/23 01:13	1
Perfluorobutanoic acid (PFBA)	<0.69		2.0	ng/L		12/10/23 14:20	12/12/23 01:13	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<0.38		2.0	ng/L		12/10/23 14:20	12/12/23 01:13	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<0.37		2.0	ng/L		12/10/23 14:20	12/12/23 01:13	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<0.48		2.0	ng/L		12/10/23 14:20	12/12/23 01:13	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.47		2.0	ng/L		12/10/23 14:20	12/12/23 01:13	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<0.25		2.0	ng/L		12/10/23 14:20	12/12/23 01:13	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.46		2.0	ng/L		12/10/23 14:20	12/12/23 01:13	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.15		2.0	ng/L		12/10/23 14:20	12/12/23 01:13	1
Perfluoropentanoic acid (PFPeA)	<0.38		2.0	ng/L		12/10/23 14:20	12/12/23 01:13	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.36		2.0	ng/L		12/10/23 14:20	12/12/23 01:13	1
Perfluoropentanesulfonic acid (PFPeS)	<0.39		2.0	ng/L		12/10/23 14:20	12/12/23 01:13	1

Isotope Dilution	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	93		50 - 200	12/10/23 14:20	12/12/23 01:13	1
13C6 PFDA	99		50 - 200	12/10/23 14:20	12/12/23 01:13	1
13C5 PFHxA	94		50 - 200	12/10/23 14:20	12/12/23 01:13	1
13C4 PFHpA	91		50 - 200	12/10/23 14:20	12/12/23 01:13	1
13C8 PFOA	95		50 - 200	12/10/23 14:20	12/12/23 01:13	1
13C9 PFNA	98		50 - 200	12/10/23 14:20	12/12/23 01:13	1
13C7 PFUnA	97		50 - 200	12/10/23 14:20	12/12/23 01:13	1
13C2 PFDoA	94		50 - 200	12/10/23 14:20	12/12/23 01:13	1
13C4 PFBA	95		50 - 200	12/10/23 14:20	12/12/23 01:13	1
13C5 PFPeA	93		50 - 200	12/10/23 14:20	12/12/23 01:13	1
13C3 PFBS	88		50 - 200	12/10/23 14:20	12/12/23 01:13	1
13C3 PFHxS	89		50 - 200	12/10/23 14:20	12/12/23 01:13	1
13C8 PFOS	93		50 - 200	12/10/23 14:20	12/12/23 01:13	1
13C2-4:2-FTS	89		50 - 200	12/10/23 14:20	12/12/23 01:13	1

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# QC Sample Results

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

Job ID: 380-72259-1

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

**Lab Sample ID: MBL 380-67260/21-A**  
**Matrix: Water**  
**Analysis Batch: 67359**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 67260**

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C2-6:2-FTS	93		50 - 200	12/10/23 14:20	12/12/23 01:13	1
13C2-8:2-FTS	104		50 - 200	12/10/23 14:20	12/12/23 01:13	1

**Lab Sample ID: LCS 380-67260/23-A**  
**Matrix: Water**  
**Analysis Batch: 67359**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 67260**

<i>Analyte</i>	<i>Spike Added</i>	<i>LCS Result</i>	<i>LCS Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	60.0	58.7		ng/L		98	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	60.0	51.3		ng/L		85	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	60.0	59.6		ng/L		99	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	60.0	55.5		ng/L		92	70 - 130
Perfluorobutanesulfonic acid (PFBS)	60.0	57.6		ng/L		96	70 - 130
Perfluorodecanoic acid (PFDA)	60.0	56.1		ng/L		94	70 - 130
Perfluorododecanoic acid (PFDoA)	60.0	55.3		ng/L		92	70 - 130
Perfluoroheptanoic acid (PFHpA)	60.0	58.6		ng/L		98	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	60.0	56.6		ng/L		94	70 - 130
Perfluorohexanoic acid (PFHxA)	60.0	54.9		ng/L		91	70 - 130
Perfluorononanoic acid (PFNA)	60.0	59.1		ng/L		99	70 - 130
Perfluorooctanesulfonic acid (PFOS)	60.0	56.4		ng/L		94	70 - 130
Perfluorooctanoic acid (PFOA)	60.0	55.7		ng/L		93	70 - 130
Perfluoroundecanoic acid (PFUnA)	60.0	57.1		ng/L		95	70 - 130
Perfluorobutanoic acid (PFBA)	60.0	56.3		ng/L		94	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	60.0	59.1		ng/L		99	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	60.0	57.8		ng/L		96	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	60.0	54.6		ng/L		91	70 - 130
Nonfluoro-3,6-dioxaheptanoic acid (NFDHA)	60.0	52.9		ng/L		88	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	60.0	56.6		ng/L		94	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	60.0	57.5		ng/L		96	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	60.0	56.2		ng/L		94	70 - 130
Perfluoropentanoic acid (PFPeA)	60.0	60.0		ng/L		100	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	60.0	57.2		ng/L		95	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	60.0	57.1		ng/L		95	70 - 130

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-72259-1

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

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	99		50 - 200
13C6 PFDA	105		50 - 200
13C5 PFHxA	102		50 - 200
13C4 PFHpA	98		50 - 200
13C8 PFOA	101		50 - 200
13C9 PFNA	102		50 - 200
13C7 PFUnA	106		50 - 200
13C2 PFDoA	106		50 - 200
13C4 PFBA	102		50 - 200
13C5 PFPeA	102		50 - 200
13C3 PFBS	98		50 - 200
13C3 PFHxS	97		50 - 200
13C8 PFOS	101		50 - 200
13C2-4:2-FTS	96		50 - 200
13C2-6:2-FTS	99		50 - 200
13C2-8:2-FTS	106		50 - 200

**Lab Sample ID: LCSD 380-67260/24-A**  
**Matrix: Water**  
**Analysis Batch: 67359**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 67260**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec	RPD	RPD
							Limits	RPD	Limit
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	60.1	58.4		ng/L		97	70 - 130	1	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	60.1	52.5		ng/L		87	70 - 130	2	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	60.1	60.6		ng/L		101	70 - 130	2	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	60.1	57.1		ng/L		95	70 - 130	3	30
Perfluorobutanesulfonic acid (PFBS)	60.1	59.3		ng/L		99	70 - 130	3	30
Perfluorodecanoic acid (PFDA)	60.1	57.6		ng/L		96	70 - 130	3	30
Perfluorododecanoic acid (PFDoA)	60.1	60.5		ng/L		101	70 - 130	9	30
Perfluoroheptanoic acid (PFHpA)	60.1	59.3		ng/L		99	70 - 130	1	30
Perfluorohexanesulfonic acid (PFHxS)	60.1	57.6		ng/L		96	70 - 130	2	30
Perfluorohexanoic acid (PFHxA)	60.1	57.4		ng/L		95	70 - 130	4	30
Perfluorononanoic acid (PFNA)	60.1	58.7		ng/L		98	70 - 130	1	30
Perfluorooctanesulfonic acid (PFOS)	60.1	57.1		ng/L		95	70 - 130	1	30
Perfluorooctanoic acid (PFOA)	60.1	58.3		ng/L		97	70 - 130	4	30
Perfluoroundecanoic acid (PFUnA)	60.1	56.6		ng/L		94	70 - 130	1	30
Perfluorobutanoic acid (PFBA)	60.1	57.9		ng/L		96	70 - 130	3	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	60.1	62.2		ng/L		103	70 - 130	5	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	60.1	58.5		ng/L		97	70 - 130	1	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	60.1	59.0		ng/L		98	70 - 130	8	30

# QC Sample Results

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

Job ID: 380-72259-1

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

**Lab Sample ID: LCSD 380-67260/24-A**  
**Matrix: Water**  
**Analysis Batch: 67359**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 67260**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nonafluoro-3,6-dioxahheptanoic acid (NFDHA)	60.1	54.9		ng/L		91	70 - 130	4	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	60.1	58.9		ng/L		98	70 - 130	4	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	60.1	58.5		ng/L		97	70 - 130	2	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	60.1	58.8		ng/L		98	70 - 130	4	30
Perfluoropentanoic acid (PFPeA)	60.1	61.2		ng/L		102	70 - 130	2	30
Perfluoroheptanesulfonic acid (PFHpS)	60.1	58.3		ng/L		97	70 - 130	2	30
Perfluoropentanesulfonic acid (PFPeS)	60.1	55.1		ng/L		92	70 - 130	4	30

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	LCSD Limits
13C3 HFPO-DA	94		50 - 200
13C6 PFDA	108		50 - 200
13C5 PFHxA	98		50 - 200
13C4 PFHpA	99		50 - 200
13C8 PFOA	102		50 - 200
13C9 PFNA	105		50 - 200
13C7 PFUnA	106		50 - 200
13C2 PFDoA	104		50 - 200
13C4 PFBA	100		50 - 200
13C5 PFPeA	100		50 - 200
13C3 PFBS	94		50 - 200
13C3 PFHxS	99		50 - 200
13C8 PFOS	102		50 - 200
13C2-4:2-FTS	98		50 - 200
13C2-6:2-FTS	98		50 - 200
13C2-8:2-FTS	109		50 - 200

**Lab Sample ID: MRL 380-67260/22-A**  
**Matrix: Water**  
**Analysis Batch: 67359**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 67260**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.00	2.16	J	ng/L		108	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.00	1.80	J	ng/L		90	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	2.09	J	ng/L		104	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	2.32	J	ng/L		116	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.00	2.02	J	ng/L		101	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	2.12	J	ng/L		106	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	2.11	J	ng/L		105	50 - 150

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-72259-1

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

**Lab Sample ID: MRL 380-67260/22-A**  
**Matrix: Water**  
**Analysis Batch: 67359**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 67260**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroheptanoic acid (PFHpA)	2.00	2.18	J	ng/L		109	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.00	2.20	J	ng/L		110	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	2.12	J	ng/L		106	50 - 150
Perfluorononanoic acid (PFNA)	2.00	2.11	J	ng/L		105	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.00	2.21	J	ng/L		110	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	2.15	J	ng/L		107	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	2.10	J	ng/L		105	50 - 150
Perfluorobutanoic acid (PFBA)	2.00	2.05	J	ng/L		102	50 - 150
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	2.00	2.10	J	ng/L		105	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	2.00	2.05	J	ng/L		102	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	2.00	2.08	J	ng/L		104	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.00	2.20	J	ng/L		110	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	2.00	1.98	J	ng/L		99	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.00	2.04	J	ng/L		102	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.00	1.92	J	ng/L		96	50 - 150
Perfluoropentanoic acid (PFPeA)	2.00	2.22	J	ng/L		111	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	2.00	2.06	J	ng/L		103	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	2.00	1.99	J	ng/L		99	50 - 150

Isotope Dilution	MRL %Recovery	MRL Qualifier	MRL Limits
13C3 HFPO-DA	92		50 - 200
13C6 PFDA	107		50 - 200
13C5 PFHxA	102		50 - 200
13C4 PFHpA	100		50 - 200
13C8 PFOA	102		50 - 200
13C9 PFNA	103		50 - 200
13C7 PFUnA	103		50 - 200
13C2 PFDoA	106		50 - 200
13C4 PFBA	100		50 - 200
13C5 PFPeA	99		50 - 200
13C3 PFBS	96		50 - 200
13C3 PFHxS	95		50 - 200
13C8 PFOS	99		50 - 200
13C2-4:2-FTS	99		50 - 200
13C2-6:2-FTS	99		50 - 200
13C2-8:2-FTS	111		50 - 200

# QC Sample Results

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

Job ID: 380-72259-1

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

**Lab Sample ID: 380-73972-B-1-B LMS**

**Matrix: Water**

**Analysis Batch: 67359**

**Client Sample ID: Matrix Spike**

**Prep Type: Total/NA**

**Prep Batch: 67260**

Analyte	Sample Result	Sample Qualifier	Spike Added	LMS Result	LMS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.01	2.00		ng/L		99	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.01	1.68	J	ng/L		83	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.01	1.66	J	ng/L		83	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.01	2.06		ng/L		102	50 - 150
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.01	2.80		ng/L		139	50 - 150
Perfluorodecanoic acid (PFDA)	<2.0		2.01	2.04		ng/L		102	50 - 150
Perfluorododecanoic acid (PFDoA)	<2.0		2.01	2.11		ng/L		105	50 - 150
Perfluoroheptanoic acid (PFHpA)	<2.0		2.01	2.39		ng/L		119	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	<2.0	F1	2.01	3.41	F1	ng/L		170	50 - 150
Perfluorohexanoic acid (PFHxA)	<2.0		2.01	3.02		ng/L		150	50 - 150
Perfluorononanoic acid (PFNA)	<2.0		2.01	2.08		ng/L		103	50 - 150
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.01	2.35		ng/L		117	50 - 150
Perfluorooctanoic acid (PFOA)	<2.0	F1	2.01	2.93		ng/L		146	50 - 150
Perfluoroundecanoic acid (PFUnA)	<2.0		2.01	1.95	J	ng/L		97	50 - 150
Perfluorobutanoic acid (PFBA)	<2.0		2.01	2.08		ng/L		104	50 - 150
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.01	2.13		ng/L		106	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.01	2.14		ng/L		106	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.01	2.08		ng/L		103	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.01	1.55	J	ng/L		77	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		2.01	2.01		ng/L		100	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.01	1.88	J	ng/L		93	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.01	2.02		ng/L		100	50 - 150
Perfluoropentanoic acid (PFPeA)	<2.0	F1	2.01	3.24	F1	ng/L		161	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.01	1.96	J	ng/L		98	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.01	2.03		ng/L		101	50 - 150

Isotope Dilution	LMS %Recovery	LMS Qualifier	Limits
13C3 HFPO-DA	50		50 - 200
13C6 PFDA	97		50 - 200
13C5 PFHxA	55		50 - 200
13C4 PFHpA	64		50 - 200
13C8 PFOA	73		50 - 200
13C9 PFNA	82		50 - 200



# QC Sample Results

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

Job ID: 380-72259-1

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

**Lab Sample ID: 380-73972-B-1-B LMS**  
**Matrix: Water**  
**Analysis Batch: 67359**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 67260**

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
13C7 PFUnA	93		50 - 200
13C2 PFDoA	97		50 - 200
13C4 PFBA	57		50 - 200
13C5 PFPeA	56		50 - 200
13C3 PFBS	93		50 - 200
13C3 PFHxS	103		50 - 200
13C8 PFOS	106		50 - 200
13C2-4:2-FTS	105		50 - 200
13C2-6:2-FTS	121		50 - 200
13C2-8:2-FTS	138		50 - 200

**Lab Sample ID: 380-73972-C-1-B LMSD**  
**Matrix: Water**  
**Analysis Batch: 67359**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 67260**

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>LMSD Result</i>	<i>LMSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.00	2.07		ng/L		103	50 - 150	4	50
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.00	1.73	J	ng/L		86	50 - 150	3	50
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.00	2.00		ng/L		100	50 - 150	18	50
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.00	2.07		ng/L		103	50 - 150	1	50
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.00	2.73		ng/L		136	50 - 150	2	50
Perfluorodecanoic acid (PFDA)	<2.0		2.00	2.15		ng/L		107	50 - 150	5	50
Perfluorododecanoic acid (PFDoA)	<2.0		2.00	2.08		ng/L		104	50 - 150	2	50
Perfluoroheptanoic acid (PFHpA)	<2.0		2.00	2.44		ng/L		122	50 - 150	2	50
Perfluorohexanesulfonic acid (PFHxS)	<2.0	F1	2.00	3.41	F1	ng/L		170	50 - 150	0	50
Perfluorohexanoic acid (PFHxA)	<2.0		2.00	2.86		ng/L		143	50 - 150	5	50
Perfluorononanoic acid (PFNA)	<2.0		2.00	2.17		ng/L		108	50 - 150	5	50
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.00	2.42		ng/L		121	50 - 150	3	50
Perfluorooctanoic acid (PFOA)	<2.0	F1	2.00	3.05	F1	ng/L		152	50 - 150	4	50
Perfluoroundecanoic acid (PFUnA)	<2.0		2.00	2.09		ng/L		104	50 - 150	7	50
Perfluorobutanoic acid (PFBA)	<2.0		2.00	2.34		ng/L		117	50 - 150	12	50
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.00	2.11		ng/L		105	50 - 150	1	50
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.00	2.21		ng/L		110	50 - 150	3	50
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.00	2.28		ng/L		114	50 - 150	9	50
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.00	1.87	J	ng/L		93	50 - 150	18	50
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.00	2.08		ng/L		104	50 - 150	3	50

# QC Sample Results

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

Job ID: 380-72259-1

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

**Lab Sample ID: 380-73972-C-1-B LMSD**  
**Matrix: Water**  
**Analysis Batch: 67359**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 67260**

Analyte	Sample Result	Sample Qualifier	Spike Added	LMSD Result	LMSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.00	1.88	J	ng/L		94	50 - 150	0	50
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.00	1.93	J	ng/L		97	50 - 150	4	50
Perfluoropentanoic acid (PFPeA)	<2.0	F1	2.00	3.25	F1	ng/L		162	50 - 150	0	50
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.00	2.01		ng/L		100	50 - 150	2	50
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.00	2.10		ng/L		105	50 - 150	3	50
		LMSD %Recovery	LMSD Qualifier								
<i>Isotope Dilution</i>				<i>Limits</i>							
13C3 HFPO-DA		60		50 - 200							
13C6 PFDA		93		50 - 200							
13C5 PFHxA		65		50 - 200							
13C4 PFHpA		68		50 - 200							
13C8 PFOA		77		50 - 200							
13C9 PFNA		86		50 - 200							
13C7 PFUnA		90		50 - 200							
13C2 PFDoA		99		50 - 200							
13C4 PFBA		65		50 - 200							
13C5 PFPeA		63		50 - 200							
13C3 PFBS		95		50 - 200							
13C3 PFHxS		102		50 - 200							
13C8 PFOS		104		50 - 200							
13C2-4:2-FTS		109		50 - 200							
13C2-6:2-FTS		106		50 - 200							
13C2-8:2-FTS		139		50 - 200							

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

**Lab Sample ID: MBL 380-65683/21-A**  
**Matrix: Water**  
**Analysis Batch: 65952**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 65683**

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		11/29/23 04:52	11/30/23 14:46	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		11/29/23 04:52	11/30/23 14:46	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		11/29/23 04:52	11/30/23 14:46	1
N-methylperfluorooctanesulfonamide acetic acid (NMeFOSAA)	<0.58		2.0	ng/L		11/29/23 04:52	11/30/23 14:46	1
N-ethylperfluorooctanesulfonamide acetic acid (NEtFOSAA)	<0.42		2.0	ng/L		11/29/23 04:52	11/30/23 14:46	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		11/29/23 04:52	11/30/23 14:46	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		11/29/23 04:52	11/30/23 14:46	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		11/29/23 04:52	11/30/23 14:46	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		11/29/23 04:52	11/30/23 14:46	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		11/29/23 04:52	11/30/23 14:46	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		11/29/23 04:52	11/30/23 14:46	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		11/29/23 04:52	11/30/23 14:46	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		11/29/23 04:52	11/30/23 14:46	1

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# QC Sample Results

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

Job ID: 380-72259-1

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

**Lab Sample ID: MBL 380-65683/21-A**  
**Matrix: Water**  
**Analysis Batch: 65952**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 65683**

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorotetradecanoic acid (PFTA)	<0.54		2.0	ng/L		11/29/23 04:52	11/30/23 14:46	1
Perfluorotridecanoic acid (PFTrDA)	<0.36		2.0	ng/L		11/29/23 04:52	11/30/23 14:46	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0	ng/L		11/29/23 04:52	11/30/23 14:46	1
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0	ng/L		11/29/23 04:52	11/30/23 14:46	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		11/29/23 04:52	11/30/23 14:46	1

Surrogate	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	103		70 - 130	11/29/23 04:52	11/30/23 14:46	1
13C2 PFHxA	100		70 - 130	11/29/23 04:52	11/30/23 14:46	1
13C2 PFDA	106		70 - 130	11/29/23 04:52	11/30/23 14:46	1
13C3-GenX	95		70 - 130	11/29/23 04:52	11/30/23 14:46	1

**Lab Sample ID: LCS 380-65683/23-A**  
**Matrix: Water**  
**Analysis Batch: 65952**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 65683**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	50.1	48.5		ng/L		97	70 - 130
Perfluorooctanesulfonic acid (PFOS)	46.4	50.2		ng/L		108	70 - 130
Perfluoroundecanoic acid (PFUnA)	50.1	56.2		ng/L		112	70 - 130
N-methylperfluorooctanesulfonamide-1,1-diacetic acid (NMeFOSAA)	50.1	52.3		ng/L		104	70 - 130
N-ethylperfluorooctanesulfonamide-1,1-diacetic acid (NEtFOSAA)	50.1	51.6		ng/L		103	70 - 130
Perfluorohexanoic acid (PFHxA)	50.1	58.3		ng/L		116	70 - 130
Perfluorododecanoic acid (PFDoA)	50.1	57.1		ng/L		114	70 - 130
Perfluorooctanoic acid (PFOA)	50.1	57.9		ng/L		116	70 - 130
Perfluorodecanoic acid (PFDA)	50.1	58.4		ng/L		117	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	45.7	50.4		ng/L		110	70 - 130
Perfluorobutanesulfonic acid (PFBS)	44.3	44.5		ng/L		100	70 - 130
Perfluoroheptanoic acid (PFHpA)	50.1	53.0		ng/L		106	70 - 130
Perfluorononanoic acid (PFNA)	50.1	61.0		ng/L		122	70 - 130
Perfluorotetradecanoic acid (PFTA)	50.1	56.3		ng/L		112	70 - 130
Perfluorotridecanoic acid (PFTrDA)	50.1	59.8		ng/L		119	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	46.8	52.6		ng/L		112	70 - 130
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	47.3	47.9		ng/L		101	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	47.3	54.1		ng/L		114	70 - 130

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# QC Sample Results

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

Job ID: 380-72259-1

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

<i>Surrogate</i>	<i>LCS</i>	<i>LCS</i>	<i>Limits</i>
<i>%Recovery</i>	<i>Qualifier</i>		
d5-NEtFOSAA	100		70 - 130
13C2 PFHxA	116		70 - 130
13C2 PFDA	117		70 - 130
13C3-GenX	106		70 - 130

**Lab Sample ID: LCSD 380-65683/24-A**  
**Matrix: Water**  
**Analysis Batch: 65952**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 65683**

<i>Analyte</i>	<i>Spike</i>	<i>LCSD</i>	<i>LCSD</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec</i>	<i>RPD</i>	<i>RPD</i>
<i>Added</i>	<i>Result</i>	<i>Qualifier</i>				<i>Limits</i>	<i>Limits</i>	<i>RPD</i>	<i>Limit</i>
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	50.1	52.8		ng/L		105	70 - 130	8	30
Perfluorooctanesulfonic acid (PFOS)	46.4	51.7		ng/L		111	70 - 130	3	30
Perfluoroundecanoic acid (PFUnA)	50.1	51.8		ng/L		103	70 - 130	8	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	50.1	54.2		ng/L		108	70 - 130	3	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	50.1	52.2		ng/L		104	70 - 130	1	30
Perfluorohexanoic acid (PFHxA)	50.1	54.5		ng/L		109	70 - 130	7	30
Perfluorododecanoic acid (PFDoA)	50.1	53.1		ng/L		106	70 - 130	7	30
Perfluorooctanoic acid (PFOA)	50.1	56.1		ng/L		112	70 - 130	3	30
Perfluorodecanoic acid (PFDA)	50.1	56.4		ng/L		113	70 - 130	3	30
Perfluorohexanesulfonic acid (PFHxS)	45.7	50.1		ng/L		110	70 - 130	1	30
Perfluorobutanesulfonic acid (PFBS)	44.3	45.9		ng/L		103	70 - 130	3	30
Perfluoroheptanoic acid (PFHpA)	50.1	53.0		ng/L		106	70 - 130	0	30
Perfluorononanoic acid (PFNA)	50.1	58.4		ng/L		117	70 - 130	4	30
Perfluorotetradecanoic acid (PFTA)	50.1	54.1		ng/L		108	70 - 130	4	30
Perfluorotridecanoic acid (PFTrDA)	50.1	53.6		ng/L		107	70 - 130	11	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	46.8	53.4		ng/L		114	70 - 130	2	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	47.3	50.4		ng/L		107	70 - 130	5	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	47.3	50.7		ng/L		107	70 - 130	7	30

<i>Surrogate</i>	<i>LCSD</i>	<i>LCSD</i>	<i>Limits</i>
<i>%Recovery</i>	<i>Qualifier</i>		
d5-NEtFOSAA	97		70 - 130
13C2 PFHxA	101		70 - 130
13C2 PFDA	106		70 - 130
13C3-GenX	92		70 - 130

# QC Sample Results

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

Job ID: 380-72259-1

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

**Lab Sample ID: MRL 380-65683/22-A**  
**Matrix: Water**  
**Analysis Batch: 65952**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 65683**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	1.92	J	ng/L		96	50 - 150
Perfluorooctanesulfonic acid (PFOS)	1.86	2.00	J	ng/L		108	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	2.22	J	ng/L		111	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	2.15	J	ng/L		107	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	2.22	J	ng/L		111	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	2.11	J	ng/L		105	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	2.35	J	ng/L		117	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	2.35	J	ng/L		117	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	2.41	J	ng/L		120	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	1.83	2.02	J	ng/L		110	50 - 150
Perfluorobutanesulfonic acid (PFBS)	1.77	1.71	J	ng/L		96	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	2.28	J	ng/L		114	50 - 150
Perfluorononanoic acid (PFNA)	2.00	2.40	J	ng/L		120	50 - 150
Perfluorotetradecanoic acid (PFTA)	2.00	2.27	J	ng/L		113	50 - 150
Perfluorotridecanoic acid (PFTrDA)	2.00	2.41	J	ng/L		120	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	1.87	2.32	J	ng/L		124	50 - 150
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	1.89	2.00	J	ng/L		106	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.89	2.26	J	ng/L		120	50 - 150

Surrogate	MRL %Recovery	MRL Qualifier	Limits
d5-NEtFOSAA	112		70 - 130
13C2 PFHxA	104		70 - 130
13C2 PFDA	111		70 - 130
13C3-GenX	95		70 - 130

**Lab Sample ID: 380-71915-M-1-A MS**  
**Matrix: Water**  
**Analysis Batch: 65952**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 65683**

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	F1	50.2	61.5		ng/L		122	70 - 130
Perfluorooctanesulfonic acid (PFOS)	<2.0		46.5	54.7		ng/L		118	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		50.2	58.5		ng/L		117	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		50.2	59.0		ng/L		118	70 - 130

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# QC Sample Results

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

Job ID: 380-72259-1

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

Lab Sample ID: 380-71915-M-1-A MS  
Matrix: Water  
Analysis Batch: 65952

Client Sample ID: Matrix Spike  
Prep Type: Total/NA  
Prep Batch: 65683

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
N-ethylperfluorooctanesulfonamide acetic acid (NEtFOSAA)	<2.0		50.2	57.3		ng/L		114	70 - 130
Perfluorohexanoic acid (PFHxA)	<2.0		50.2	57.5		ng/L		115	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		50.2	62.3		ng/L		124	70 - 130
Perfluorooctanoic acid (PFOA)	<2.0		50.2	61.2		ng/L		122	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0	F1	50.2	64.5		ng/L		128	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	<2.0		45.8	52.5		ng/L		115	70 - 130
Perfluorobutanesulfonic acid (PFBS)	<2.0		44.4	47.6		ng/L		107	70 - 130
Perfluoroheptanoic acid (PFHpA)	<2.0		50.2	51.7		ng/L		103	70 - 130
Perfluorononanoic acid (PFNA)	<2.0		50.2	62.7		ng/L		125	70 - 130
Perfluorotetradecanoic acid (PFTA)	<2.0		50.2	56.1		ng/L		112	70 - 130
Perfluorotridecanoic acid (PFTTrDA)	<2.0		50.2	61.7		ng/L		123	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		46.9	55.5		ng/L		118	70 - 130
11-Chloroeicosasfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		47.4	52.3		ng/L		110	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		47.4	54.3		ng/L		114	70 - 130
<b>Surrogate</b>	<b>%Recovery</b>	<b>MS Qualifier</b>		<b>MS Limits</b>					
d5-NEtFOSAA	104			70 - 130					
13C2 PFHxA	113			70 - 130					
13C2 PFDA	123			70 - 130					
13C3-GenX	130			70 - 130					

Lab Sample ID: 380-71915-N-1-A MSD  
Matrix: Water  
Analysis Batch: 65952

Client Sample ID: Matrix Spike Duplicate  
Prep Type: Total/NA  
Prep Batch: 65683

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0	F1	50.2	65.9	F1	ng/L		131	70 - 130	7	30
Perfluorooctanesulfonic acid (PFOS)	<2.0		46.5	52.4		ng/L		113	70 - 130	4	30
Perfluoroundecanoic acid (PFUnA)	<2.0		50.2	56.7		ng/L		113	70 - 130	3	30
N-methylperfluorooctanesulfonamide acetic acid (NMeFOSAA)	<2.0		50.2	56.4		ng/L		112	70 - 130	5	30
N-ethylperfluorooctanesulfonamide acetic acid (NEtFOSAA)	<2.0		50.2	54.4		ng/L		108	70 - 130	5	30
Perfluorohexanoic acid (PFHxA)	<2.0		50.2	57.5		ng/L		114	70 - 130	0	30
Perfluorododecanoic acid (PFDoA)	<2.0		50.2	59.0		ng/L		118	70 - 130	5	30
Perfluorooctanoic acid (PFOA)	<2.0		50.2	59.6		ng/L		119	70 - 130	3	30
Perfluorodecanoic acid (PFDA)	<2.0	F1	50.2	66.2	F1	ng/L		132	70 - 130	3	30

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# QC Sample Results

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

Job ID: 380-72259-1

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

**Lab Sample ID: 380-71915-N-1-A MSD**

**Matrix: Water**

**Analysis Batch: 65952**

**Client Sample ID: Matrix Spike Duplicate**

**Prep Type: Total/NA**

**Prep Batch: 65683**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorohexanesulfonic acid (PFHxS)	<2.0		45.8	51.3		ng/L		112	70 - 130	2	30
Perfluorobutanesulfonic acid (PFBS)	<2.0		44.4	45.7		ng/L		103	70 - 130	4	30
Perfluoroheptanoic acid (PFHpA)	<2.0		50.2	50.5		ng/L		101	70 - 130	2	30
Perfluorononanoic acid (PFNA)	<2.0		50.2	61.3		ng/L		122	70 - 130	2	30
Perfluorotetradecanoic acid (PFTA)	<2.0		50.2	55.3		ng/L		110	70 - 130	1	30
Perfluorotridecanoic acid (PFTTrDA)	<2.0		50.2	61.0		ng/L		122	70 - 130	1	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		46.9	54.1		ng/L		115	70 - 130	3	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		47.4	49.8		ng/L		105	70 - 130	5	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		47.4	54.5		ng/L		115	70 - 130	0	30

Surrogate	MSD %Recovery	MSD Qualifier	Limits
d5-NEtFOSAA	101		70 - 130
13C2 PFHxA	111		70 - 130
13C2 PFDA	118		70 - 130
13C3-GenX	118		70 - 130

## Method: 625 PAH Physis LL (EAL) + TICs - EPA 625 Base/Neutral and Acid Organics i

**Lab Sample ID: 113154-B1**

**Matrix: BlankMatrix**

**Analysis Batch: O-44032**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: O-44032\_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 17:39	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 17:39	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 17:39	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 17:39	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 17:39	1
Acenaphthene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 17:39	1
Acenaphthylene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 17:39	1
Anthracene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 17:39	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 17:39	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 17:39	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 17:39	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 17:39	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 17:39	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 17:39	1
Biphenyl	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 17:39	1
Chrysene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 17:39	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 17:39	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 17:39	1
Dibenzothiophene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 17:39	1

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# QC Sample Results

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

Job ID: 380-72259-1

## Method: 625 PAH Physis LL (EAL) + TICs - EPA 625 Base/Neutral and Acid Organics i (Continued)

**Lab Sample ID: 113154-B1**  
**Matrix: BlankMatrix**  
**Analysis Batch: O-44032**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: O-44032\_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Disalicylidenepranediamine	ND		0.1	0.05	µg/L		11/27/23 00:00	12/23/23 17:39	1
Fluoranthene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 17:39	1
Fluorene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 17:39	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 17:39	1
Naphthalene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 17:39	1
Perylene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 17:39	1
Phenanthrene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 17:39	1
Pyrene	ND		0.005	0.001	µg/L		11/27/23 00:00	12/23/23 17:39	1

Surrogate	Blank %Recovery	Blank Qualifier	Limits	Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	89		27 - 133	11/27/23 00:00	12/23/23 17:39	1
(d10-Phenanthrene)	107		43 - 129	11/27/23 00:00	12/23/23 17:39	1
(d12-Chrysene)	99		52 - 144	11/27/23 00:00	12/23/23 17:39	1
(d12-Perylene)	99		36 - 161	11/27/23 00:00	12/23/23 17:39	1
(d8-Naphthalene)	81		25 - 125	11/27/23 00:00	12/23/23 17:39	1

**Lab Sample ID: 113154-BS1**  
**Matrix: BlankMatrix**  
**Analysis Batch: O-44032**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: O-44032\_P**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1-Methylnaphthalene	0.5	0.353		µg/L		71	31 - 128
1-Methylphenanthrene	0.5	0.47		µg/L		94	66 - 127
2,3,5-Trimethylnaphthalene	0.5	0.411		µg/L		82	55 - 122
2,6-Dimethylnaphthalene	0.5	0.412		µg/L		82	48 - 120
2-Methylnaphthalene	0.5	0.371		µg/L		74	47 - 130
Acenaphthene	0.5	0.414		µg/L		83	53 - 131
Acenaphthylene	0.5	0.398		µg/L		80	43 - 140
Anthracene	0.5	0.456		µg/L		91	58 - 135
Benz[a]anthracene	0.5	0.425		µg/L		85	55 - 145
Benzo[a]pyrene	0.5	0.468		µg/L		94	51 - 143
Benzo[b]fluoranthene	0.5	0.487		µg/L		97	46 - 165
Benzo[e]pyrene	0.5	0.44		µg/L		88	42 - 152
Benzo[g,h,i]perylene	0.5	0.489		µg/L		98	63 - 133
Benzo[k]fluoranthene	0.5	0.431		µg/L		86	56 - 145
Biphenyl	0.5	0.389		µg/L		78	56 - 119
Chrysene	0.5	0.516		µg/L		103	56 - 141
Dibenz[a,h]anthracene	0.5	0.543		µg/L		109	55 - 150
Dibenzo[a,l]pyrene	0.5	0.473		µg/L		95	50 - 150
Dibenzothiophene	0.5	0.458		µg/L		92	46 - 126
Disalicylidenepranediamine	50	73.9		µg/L		148	50 - 150
Fluoranthene	0.5	0.492		µg/L		98	60 - 146
Fluorene	0.5	0.472		µg/L		94	58 - 131
Indeno[1,2,3-cd]pyrene	0.5	0.529		µg/L		106	50 - 151
Naphthalene	0.5	0.363		µg/L		73	41 - 126
Perylene	0.5	0.428		µg/L		86	48 - 141
Phenanthrene	0.5	0.477		µg/L		95	67 - 127
Pyrene	0.5	0.481		µg/L		96	54 - 156

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-72259-1

## Method: 625 PAH Physis LL (EAL) + TICs - EPA 625 Base/Neutral and Acid Organics i (Continued)

**Lab Sample ID: 113154-BS1**  
**Matrix: BlankMatrix**  
**Analysis Batch: O-44032**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: O-44032\_P**

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
(d10-Acenaphthene)	78		27 - 133
(d10-Phenanthrene)	104		43 - 129
(d12-Chrysene)	88		52 - 144
(d12-Perylene)	96		36 - 161
(d8-Naphthalene)	73		25 - 125

**Lab Sample ID: 113154-BS2**  
**Matrix: BlankMatrix**  
**Analysis Batch: O-44032**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: O-44032\_P**

Analyte	Spike Added	LCS DUP Result	LCS DUP Qualifier	Unit	D	%Rec	%Rec		RPD	
							Limits	RPD	Limit	
1-Methylnaphthalene	0.5	0.335		µg/L		67	31 - 128	6	30	
1-Methylphenanthrene	0.5	0.41		µg/L		82	66 - 127	14	30	
2,3,5-Trimethylnaphthalene	0.5	0.413		µg/L		83	55 - 122	1	30	
2,6-Dimethylnaphthalene	0.5	0.358		µg/L		72	48 - 120	13	30	
2-Methylnaphthalene	0.5	0.344		µg/L		69	47 - 130	7	30	
Acenaphthene	0.5	0.375		µg/L		75	53 - 131	10	30	
Acenaphthylene	0.5	0.348		µg/L		70	43 - 140	13	30	
Anthracene	0.5	0.454		µg/L		91	58 - 135	0	30	
Benz[a]anthracene	0.5	0.399		µg/L		80	55 - 145	6	30	
Benzo[a]pyrene	0.5	0.422		µg/L		84	51 - 143	11	30	
Benzo[b]fluoranthene	0.5	0.457		µg/L		91	46 - 165	6	30	
Benzo[e]pyrene	0.5	0.441		µg/L		88	42 - 152	0	30	
Benzo[g,h,i]perylene	0.5	0.476		µg/L		95	63 - 133	3	30	
Benzo[k]fluoranthene	0.5	0.443		µg/L		89	56 - 145	3	30	
Biphenyl	0.5	0.353		µg/L		71	56 - 119	9	30	
Chrysene	0.5	0.553		µg/L		111	56 - 141	7	30	
Dibenz[a,h]anthracene	0.5	0.515		µg/L		103	55 - 150	6	30	
Dibenzo[a,l]pyrene	0.5	0.416		µg/L		83	50 - 150	13	30	
Dibenzothiophene	0.5	0.424		µg/L		85	46 - 126	8	30	
Disalicylidenepropanediamine	50	74.2		µg/L		148	50 - 150	0	30	
Fluoranthene	0.5	0.454		µg/L		91	60 - 146	7	30	
Fluorene	0.5	0.437		µg/L		87	58 - 131	8	30	
Indeno[1,2,3-cd]pyrene	0.5	0.513		µg/L		103	50 - 151	3	30	
Naphthalene	0.5	0.336		µg/L		67	41 - 126	9	30	
Perylene	0.5	0.438		µg/L		88	48 - 141	2	30	
Phenanthrene	0.5	0.445		µg/L		89	67 - 127	7	30	
Pyrene	0.5	0.455		µg/L		91	54 - 156	5	30	

Surrogate	LCS DUP LCS DUP		Limits
	%Recovery	Qualifier	
(d10-Acenaphthene)	71		27 - 133
(d10-Phenanthrene)	93		43 - 129
(d12-Chrysene)	96		52 - 144
(d12-Perylene)	93		36 - 161
(d8-Naphthalene)	67		25 - 125

# QC Association Summary

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

Job ID: 380-72259-1

## GC/MS Semi VOA

### Prep Batch: 65150

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-72259-1	MOANALUA WELLS	Total/NA	Drinking Water	525.2	
380-72259-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	525.2	
380-72259-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	525.2	
380-72259-4	HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Drinking Water	525.2	
MB 380-65150/21-A	Method Blank	Total/NA	Water	525.2	
LCS 380-65150/23-A	Lab Control Sample	Total/NA	Water	525.2	
MRL 380-65150/22-A	Lab Control Sample	Total/NA	Water	525.2	
380-72259-1 MS	MOANALUA WELLS	Total/NA	Drinking Water	525.2	
380-72262-B-2-A DU	Duplicate	Total/NA	Water	525.2	

### Analysis Batch: 65219

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-72259-1	MOANALUA WELLS	Total/NA	Drinking Water	525.2	65150
380-72259-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	525.2	65150
380-72259-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	525.2	65150
380-72259-4	HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Drinking Water	525.2	65150
MB 380-65150/21-A	Method Blank	Total/NA	Water	525.2	65150
LCS 380-65150/23-A	Lab Control Sample	Total/NA	Water	525.2	65150
MRL 380-65150/22-A	Lab Control Sample	Total/NA	Water	525.2	65150
380-72259-1 MS	MOANALUA WELLS	Total/NA	Drinking Water	525.2	65150
380-72262-B-2-A DU	Duplicate	Total/NA	Water	525.2	65150

## GC VOA

### Analysis Batch: 388050

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-72259-1	MOANALUA WELLS	Total/NA	Drinking Water	8015B GRO LL	
380-72259-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	8015B GRO LL	
380-72259-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	8015B GRO LL	
380-72259-4	HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Drinking Water	8015B GRO LL	
380-72259-5	TB MOANALUA WELLS	Total/NA	Water	8015B GRO LL	
380-72259-6	TB AIEA GULCH WELLS PUMP 2	Total/NA	Water	8015B GRO LL	
380-72259-7	TB AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Water	8015B GRO LL	
380-72259-8	TB HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Water	8015B GRO LL	
MB 570-388050/6	Method Blank	Total/NA	Water	8015B GRO LL	
LCS 570-388050/4	Lab Control Sample	Total/NA	Water	8015B GRO LL	
LCSD 570-388050/5	Lab Control Sample Dup	Total/NA	Water	8015B GRO LL	
MRL 570-388050/3	Lab Control Sample	Total/NA	Water	8015B GRO LL	
380-72259-1 MS	MOANALUA WELLS	Total/NA	Drinking Water	8015B GRO LL	
380-72259-1 MSD	MOANALUA WELLS	Total/NA	Drinking Water	8015B GRO LL	

## GC Semi VOA

### Prep Batch: 386928

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-72259-1	MOANALUA WELLS	Total/NA	Drinking Water	3510C	
380-72259-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	3510C	
380-72259-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	3510C	
380-72259-4	HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Drinking Water	3510C	
MB 570-386928/1-A	Method Blank	Total/NA	Water	3510C	
LCS 570-386928/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 570-386928/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

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# QC Association Summary

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

Job ID: 380-72259-1

## GC Semi VOA

### Analysis Batch: 387700

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-386928/1-A	Method Blank	Total/NA	Water	8015B	386928
LCS 570-386928/2-A	Lab Control Sample	Total/NA	Water	8015B	386928
LCSD 570-386928/3-A	Lab Control Sample Dup	Total/NA	Water	8015B	386928

### Analysis Batch: 387901

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-72259-1	MOANALUA WELLS	Total/NA	Drinking Water	8015B	
380-72259-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	8015B	
380-72259-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	8015B	
380-72259-4	HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Drinking Water	8015B	
MB 570-387901/3	Method Blank	Total/NA	Water	8015B	
LCS 570-387901/4	Lab Control Sample	Total/NA	Water	8015B	
LCSD 570-387901/5	Lab Control Sample Dup	Total/NA	Water	8015B	
MRL 570-387901/6	Lab Control Sample	Total/NA	Water	8015B	
380-71845-AK-1 MS	Matrix Spike	Total/NA	Water	8015B	
380-71845-AK-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8015B	

### Analysis Batch: 392703

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-72259-1	MOANALUA WELLS	Total/NA	Drinking Water	8015B	386928
380-72259-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	8015B	386928
380-72259-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	8015B	386928
380-72259-4	HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Drinking Water	8015B	386928

## LCMS

### Prep Batch: 65683

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-72259-1	MOANALUA WELLS	Total/NA	Drinking Water	537.1 DW	
380-72259-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	537.1 DW	
380-72259-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	537.1 DW	
380-72259-4	HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Drinking Water	537.1 DW	
380-72259-9	FB MOANALUA WELLS	Total/NA	Water	537.1 DW	
380-72259-10	FB AIEA GULCH WELLS PUMP 2	Total/NA	Water	537.1 DW	
380-72259-11	FB AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Water	537.1 DW	
380-72259-12	FB HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Water	537.1 DW	
MBL 380-65683/21-A	Method Blank	Total/NA	Water	537.1 DW	
LCS 380-65683/23-A	Lab Control Sample	Total/NA	Water	537.1 DW	
LCSD 380-65683/24-A	Lab Control Sample Dup	Total/NA	Water	537.1 DW	
MRL 380-65683/22-A	Lab Control Sample	Total/NA	Water	537.1 DW	
380-71915-M-1-A MS	Matrix Spike	Total/NA	Water	537.1 DW	
380-71915-N-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	537.1 DW	

### Analysis Batch: 65952

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-72259-1	MOANALUA WELLS	Total/NA	Drinking Water	537.1	65683
380-72259-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	537.1	65683
380-72259-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	537.1	65683
380-72259-4	HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Drinking Water	537.1	65683
380-72259-9	FB MOANALUA WELLS	Total/NA	Water	537.1	65683
380-72259-10	FB AIEA GULCH WELLS PUMP 2	Total/NA	Water	537.1	65683

# QC Association Summary

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

Job ID: 380-72259-1

## LCMS (Continued)

### Analysis Batch: 65952 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-72259-11	FB AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Water	537.1	65683
380-72259-12	FB HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Water	537.1	65683
MBL 380-65683/21-A	Method Blank	Total/NA	Water	537.1	65683
LCS 380-65683/23-A	Lab Control Sample	Total/NA	Water	537.1	65683
LCSD 380-65683/24-A	Lab Control Sample Dup	Total/NA	Water	537.1	65683
MRL 380-65683/22-A	Lab Control Sample	Total/NA	Water	537.1	65683
380-71915-M-1-A MS	Matrix Spike	Total/NA	Water	537.1	65683
380-71915-N-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	537.1	65683

### Prep Batch: 66506

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-72259-1	MOANALUA WELLS	Total/NA	Drinking Water	533	
380-72259-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	533	
380-72259-4	HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Drinking Water	533	
380-72259-9	FB MOANALUA WELLS	Total/NA	Water	533	
380-72259-10	FB AIEA GULCH WELLS PUMP 2	Total/NA	Water	533	
380-72259-11	FB AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Water	533	
380-72259-12	FB HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Water	533	
MBL 380-66506/21-A	Method Blank	Total/NA	Water	533	
LCS 380-66506/23-A	Lab Control Sample	Total/NA	Water	533	
LCSD 380-66506/24-A	Lab Control Sample Dup	Total/NA	Water	533	
MRL 380-66506/22-A	Lab Control Sample	Total/NA	Water	533	
380-72663-B-1-A MS	Matrix Spike	Total/NA	Water	533	
380-72663-C-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	

### Analysis Batch: 66901

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-72259-1	MOANALUA WELLS	Total/NA	Drinking Water	533	66506
380-72259-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	533	66506
380-72259-4	HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Drinking Water	533	66506
380-72259-9	FB MOANALUA WELLS	Total/NA	Water	533	66506
380-72259-10	FB AIEA GULCH WELLS PUMP 2	Total/NA	Water	533	66506
380-72259-11	FB AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Water	533	66506
380-72259-12	FB HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Water	533	66506
MBL 380-66506/21-A	Method Blank	Total/NA	Water	533	66506
LCS 380-66506/23-A	Lab Control Sample	Total/NA	Water	533	66506
LCSD 380-66506/24-A	Lab Control Sample Dup	Total/NA	Water	533	66506
MRL 380-66506/22-A	Lab Control Sample	Total/NA	Water	533	66506
380-72663-B-1-A MS	Matrix Spike	Total/NA	Water	533	66506
380-72663-C-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	66506

### Prep Batch: 67260

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-72259-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	533	
MBL 380-67260/21-A	Method Blank	Total/NA	Water	533	
LCS 380-67260/23-A	Lab Control Sample	Total/NA	Water	533	
LCSD 380-67260/24-A	Lab Control Sample Dup	Total/NA	Water	533	
MRL 380-67260/22-A	Lab Control Sample	Total/NA	Water	533	
380-73972-B-1-B LMS	Matrix Spike	Total/NA	Water	533	
380-73972-C-1-B LMSD	Matrix Spike Duplicate	Total/NA	Water	533	

# QC Association Summary

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

Job ID: 380-72259-1

## LCMS

### Analysis Batch: 67359

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-72259-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	533	67260
MBL 380-67260/21-A	Method Blank	Total/NA	Water	533	67260
LCS 380-67260/23-A	Lab Control Sample	Total/NA	Water	533	67260
LCSD 380-67260/24-A	Lab Control Sample Dup	Total/NA	Water	533	67260
MRL 380-67260/22-A	Lab Control Sample	Total/NA	Water	533	67260
380-73972-B-1-B LMS	Matrix Spike	Total/NA	Water	533	67260
380-73972-C-1-B LMSD	Matrix Spike Duplicate	Total/NA	Water	533	67260

## Subcontract

### Analysis Batch: O-44032

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-72259-1	MOANALUA WELLS	Total/NA	Drinking Water	625 PAH Physis	O-44032_P
380-72259-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	625 PAH Physis	O-44032_P
380-72259-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	625 PAH Physis	O-44032_P
380-72259-4	HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Drinking Water	625 PAH Physis	O-44032_P
113154-B1	Method Blank	Total/NA	BlankMatrix	625 PAH Physis	O-44032_P
113154-BS1	Lab Control Sample	Total/NA	BlankMatrix	625 PAH Physis	O-44032_P
113154-BS2	Lab Control Sample Dup	Total/NA	BlankMatrix	625 PAH Physis	O-44032_P

### Prep Batch: O-44032\_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-72259-1	MOANALUA WELLS	Total/NA	Drinking Water	EPA_625	
380-72259-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	EPA_625	
380-72259-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	EPA_625	
380-72259-4	HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Drinking Water	EPA_625	
113154-B1	Method Blank	Total/NA	BlankMatrix	EPA_625	
113154-BS1	Lab Control Sample	Total/NA	BlankMatrix	EPA_625	
113154-BS2	Lab Control Sample Dup	Total/NA	BlankMatrix	EPA_625	



# Lab Chronicle

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

Job ID: 380-72259-1

## Client Sample ID: MOANALUA WELLS

Lab Sample ID: 380-72259-1

Date Collected: 11/20/23 10:09

Matrix: Drinking Water

Date Received: 11/22/23 10:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	525.2			65150	N8NE	EA POM	11/24/23 17:31
Total/NA	Analysis	525.2		1	65219	Q8LA	EA POM	11/26/23 12:01
Total/NA	Analysis	8015B GRO LL		1	388050	A9VE	EET CAL 4	11/30/23 14:06
Total/NA	Prep	3510C			386928	TR8L	EET CAL 4	11/27/23 20:53
Total/NA	Analysis	8015B		1	392703	SP9M	EET CAL 4	12/14/23 15:49
Total/NA	Analysis	8015B		1	387901	J7WE	EET CAL 4	11/29/23 22:26
Total/NA	Prep	533			66506	T2EP	EA POM	12/05/23 08:54
Total/NA	Analysis	533		1	66901	SZ9R	EA POM	12/07/23 19:04
Total/NA	Prep	537.1 DW			65683	U7RS	EA POM	11/29/23 04:52
Total/NA	Analysis	537.1		1	65952	SZ9R	EA POM	11/30/23 17:40
Total/NA	Prep	EPA_625		1	O-44032_P			11/27/23 00:00
Total/NA	Analysis	625 PAH Physis LL (EAL) + TICs		1	O-44032	YC		12/23/23 22:54

## Client Sample ID: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-72259-2

Date Collected: 11/20/23 11:08

Matrix: Drinking Water

Date Received: 11/22/23 10:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	525.2			65150	N8NE	EA POM	11/24/23 17:31
Total/NA	Analysis	525.2		1	65219	Q8LA	EA POM	11/26/23 13:24
Total/NA	Analysis	8015B GRO LL		1	388050	A9VE	EET CAL 4	11/30/23 14:32
Total/NA	Prep	3510C			386928	TR8L	EET CAL 4	11/27/23 20:53
Total/NA	Analysis	8015B		1	392703	SP9M	EET CAL 4	12/14/23 16:10
Total/NA	Analysis	8015B		1	387901	J7WE	EET CAL 4	11/29/23 22:47
Total/NA	Prep	533			66506	T2EP	EA POM	12/05/23 08:54
Total/NA	Analysis	533		1	66901	SZ9R	EA POM	12/07/23 19:14
Total/NA	Prep	537.1 DW			65683	U7RS	EA POM	11/29/23 04:52
Total/NA	Analysis	537.1		1	65952	SZ9R	EA POM	11/30/23 17:49
Total/NA	Prep	EPA_625		1	O-44032_P			11/27/23 00:00
Total/NA	Analysis	625 PAH Physis LL (EAL) + TICs		1	O-44032	YC		12/24/23 00:38

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

Lab Sample ID: 380-72259-3

Date Collected: 11/20/23 11:35

Matrix: Drinking Water

Date Received: 11/22/23 10:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	525.2			65150	N8NE	EA POM	11/24/23 17:31
Total/NA	Analysis	525.2		1	65219	Q8LA	EA POM	11/26/23 13:44
Total/NA	Analysis	8015B GRO LL		1	388050	A9VE	EET CAL 4	11/30/23 14:58
Total/NA	Prep	3510C			386928	TR8L	EET CAL 4	11/27/23 20:53
Total/NA	Analysis	8015B		1	392703	SP9M	EET CAL 4	12/14/23 16:30
Total/NA	Analysis	8015B		1	387901	J7WE	EET CAL 4	11/29/23 23:09



# Lab Chronicle

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

Job ID: 380-72259-1

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

## Lab Sample ID: 380-72259-3

Date Collected: 11/20/23 11:35

Matrix: Drinking Water

Date Received: 11/22/23 10:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			67260	T2EP	EA POM	12/10/23 14:20
Total/NA	Analysis	533		1	67359	SZ9R	EA POM	12/12/23 02:29
Total/NA	Prep	537.1 DW			65683	U7RS	EA POM	11/29/23 04:52
Total/NA	Analysis	537.1		1	65952	SZ9R	EA POM	11/30/23 17:59
Total/NA	Prep	EPA_625		1	O-44032_P			11/27/23 00:00
Total/NA	Analysis	625 PAH Physis LL (EAL) + TICs		1	O-44032	YC		12/24/23 02:22

## Client Sample ID: HALAWA WELLS UNITS 1 & 2 P1

## Lab Sample ID: 380-72259-4

Date Collected: 11/20/23 10:40

Matrix: Drinking Water

Date Received: 11/22/23 10:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	525.2			65150	N8NE	EA POM	11/24/23 17:31
Total/NA	Analysis	525.2		1	65219	Q8LA	EA POM	11/26/23 14:05
Total/NA	Analysis	8015B GRO LL		1	388050	A9VE	EET CAL 4	11/30/23 15:24
Total/NA	Prep	3510C			386928	TR8L	EET CAL 4	11/27/23 20:53
Total/NA	Analysis	8015B		1	392703	SP9M	EET CAL 4	12/14/23 16:51
Total/NA	Analysis	8015B		1	387901	J7WE	EET CAL 4	11/29/23 23:31
Total/NA	Prep	533			66506	T2EP	EA POM	12/05/23 08:54
Total/NA	Analysis	533		1	66901	SZ9R	EA POM	12/07/23 19:33
Total/NA	Prep	537.1 DW			65683	U7RS	EA POM	11/29/23 04:52
Total/NA	Analysis	537.1		1	65952	SZ9R	EA POM	11/30/23 18:09
Total/NA	Prep	EPA_625		1	O-44032_P			11/27/23 00:00
Total/NA	Analysis	625 PAH Physis LL (EAL) + TICs		1	O-44032	YC		12/24/23 04:07

## Client Sample ID: TB MOANALUA WELLS

## Lab Sample ID: 380-72259-5

Date Collected: 11/20/23 10:09

Matrix: Water

Date Received: 11/22/23 10:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015B GRO LL		1	388050	A9VE	EET CAL 4	11/30/23 12:21

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

## Lab Sample ID: 380-72259-6

Date Collected: 11/20/23 11:08

Matrix: Water

Date Received: 11/22/23 10:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015B GRO LL		1	388050	A9VE	EET CAL 4	11/30/23 12:47

# Lab Chronicle

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

Job ID: 380-72259-1

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

**Lab Sample ID: 380-72259-7**

Date Collected: 11/20/23 11:35

Matrix: Water

Date Received: 11/22/23 10:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015B GRO LL		1	388050	A9VE	EET CAL 4	11/30/23 13:13

**Client Sample ID: TB HALAWA WELLS UNITS 1 & 2 P1**

**Lab Sample ID: 380-72259-8**

Date Collected: 11/20/23 10:40

Matrix: Water

Date Received: 11/22/23 10:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015B GRO LL		1	388050	A9VE	EET CAL 4	11/30/23 13:40

**Client Sample ID: FB MOANALUA WELLS**

**Lab Sample ID: 380-72259-9**

Date Collected: 11/20/23 10:09

Matrix: Water

Date Received: 11/22/23 10:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			66506	T2EP	EA POM	12/05/23 08:54
Total/NA	Analysis	533		1	66901	SZ9R	EA POM	12/07/23 19:43
Total/NA	Prep	537.1 DW			65683	U7RS	EA POM	11/29/23 04:52
Total/NA	Analysis	537.1		1	65952	SZ9R	EA POM	11/30/23 18:18

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

**Lab Sample ID: 380-72259-10**

Date Collected: 11/20/23 11:08

Matrix: Water

Date Received: 11/22/23 10:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			66506	T2EP	EA POM	12/05/23 08:54
Total/NA	Analysis	533		1	66901	SZ9R	EA POM	12/07/23 19:52
Total/NA	Prep	537.1 DW			65683	U7RS	EA POM	11/29/23 04:52
Total/NA	Analysis	537.1		1	65952	SZ9R	EA POM	11/30/23 18:28

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

**Lab Sample ID: 380-72259-11**

Date Collected: 11/20/23 11:35

Matrix: Water

Date Received: 11/22/23 10:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			66506	T2EP	EA POM	12/05/23 08:54
Total/NA	Analysis	533		1	66901	SZ9R	EA POM	12/07/23 20:02
Total/NA	Prep	537.1 DW			65683	U7RS	EA POM	11/29/23 04:52
Total/NA	Analysis	537.1		1	65952	SZ9R	EA POM	11/30/23 18:37

**Client Sample ID: FB HALAWA WELLS UNITS 1 & 2 P1**

**Lab Sample ID: 380-72259-12**

Date Collected: 11/20/23 10:40

Matrix: Water

Date Received: 11/22/23 10:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			66506	T2EP	EA POM	12/05/23 08:54
Total/NA	Analysis	533		1	66901	SZ9R	EA POM	12/07/23 20:11

Eurofins Eaton Analytical Pomona

# Lab Chronicle

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

Job ID: 380-72259-1

**Client Sample ID: FB HALAWA WELLS UNITS 1 & 2 P1**

**Lab Sample ID: 380-72259-12**

**Date Collected: 11/20/23 10:40**

**Matrix: Water**

**Date Received: 11/22/23 10:50**

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Analyst</u>	<u>Lab</u>	<u>Prepared or Analyzed</u>
Total/NA	Prep	537.1 DW			65683	U7RS	EA POM	11/29/23 04:52
Total/NA	Analysis	537.1		1	65952	SZ9R	EA POM	11/30/23 18:47

**Laboratory References:**

= Physis Environmental Laboratories, 1904 Wright Circle, Anaheim, CA 92806

EA POM = Eurofins Eaton Analytical Pomona, 941 Corporate Center Drive, Pomona, CA 91768-2642, TEL (626)386-1100

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494



# Accreditation/Certification Summary

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

Job ID: 380-72259-1

## 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: 380-72259-1

## 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: 380-72259-1

## 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-Chloroeicosafluoro-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-Chloroeicosafluoro-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)

## Laboratory: Eurofins Calscience

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-24
California	Los Angeles County Sanitation Districts	10109	08-01-24
California	State	3082	07-31-24
Kansas	NELAP	E-10420	08-01-24
Nevada	State	CA00111	07-31-24
Oregon	NELAP	4175	02-02-24
USDA	US Federal Programs	P330-22-00059	06-08-26
Washington	State	C916-18	10-11-24

# Method Summary

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

Job ID: 380-72259-1

Method	Method Description	Protocol	Laboratory
525.2	Semivolatile Organic Compounds (GC/MS)	EPA	EA POM
8015B GRO LL	Gasoline Range Organics - (GC)	SW846	EET CAL 4
8015B	Diesel Range Organics (DRO) (GC) Low Level	SW846	EET CAL 4
8015B	Nonhalogenated Organic Compounds - Direct Injection (GC)	SW846	EET CAL 4
533	Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water	EPA	EA POM
537.1	Perfluorinated Alkyl Acids (LC/MS)	EPA	EA POM
625	EPA 625 Base/Neutral and Acid Organics i	EPA	
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET CAL 4
5030C	Purge and Trap	SW846	EET CAL 4
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

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

= Physis Environmental Laboratories, 1904 Wright Circle, Anaheim, CA 92806

EA POM = Eurofins Eaton Analytical Pomona, 941 Corporate Center Drive, Pomona, CA 91768-2642, TEL (626)386-1100

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494



# Sample Summary

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

Job ID: 380-72259-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	PWSID Number
380-72259-1	MOANALUA WELLS	Drinking Water	11/20/23 10:09	11/22/23 10:50	HI0000331
380-72259-2	AIEA GULCH WELLS PUMP 2	Drinking Water	11/20/23 11:08	11/22/23 10:50	HI0000331
380-72259-3	AIEA WELLS PUMPS 1&2 (260) P2	Drinking Water	11/20/23 11:35	11/22/23 10:50	HI0000331
380-72259-4	HALAWA WELLS UNITS 1 & 2 P1	Drinking Water	11/20/23 10:40	11/22/23 10:50	HI0000331
380-72259-5	TB MOANALUA WELLS	Water	11/20/23 10:09	11/22/23 10:50	HI0000331
380-72259-6	TB AIEA GULCH WELLS PUMP 2	Water	11/20/23 11:08	11/22/23 10:50	HI0000331
380-72259-7	TB AIEA WELLS PUMPS 1&2 (260) P2	Water	11/20/23 11:35	11/22/23 10:50	HI0000331
380-72259-8	TB HALAWA WELLS UNITS 1 & 2 P1	Water	11/20/23 10:40	11/22/23 10:50	HI0000331
380-72259-9	FB MOANALUA WELLS	Water	11/20/23 10:09	11/22/23 10:50	HI0000331
380-72259-10	FB AIEA GULCH WELLS PUMP 2	Water	11/20/23 11:08	11/22/23 10:50	HI0000331
380-72259-11	FB AIEA WELLS PUMPS 1&2 (260) P2	Water	11/20/23 11:35	11/22/23 10:50	HI0000331
380-72259-12	FB HALAWA WELLS UNITS 1 & 2 P1	Water	11/20/23 10:40	11/22/23 10:50	HI0000331



December 27, 2023

Rachelle Arada  
Eurofins Eaton Analytical  
750 Royal Oaks Drive  
Suite 100  
Monrovia, CA 91016-

Project Name: RED-HILL Project # 38001111 Job # 380-72259-1  
Physis Project ID: 1407003-462

Dear Rachelle,

Enclosed are the analytical results for samples submitted to PHYSIS Environmental Laboratories, Inc. (PHYSIS) on 11/27/2023. A total of 4 samples were received for analysis in accordance with the attached chain of custody (COC). Per the COC, the samples were analyzed for:

Organics
Polynuclear Aromatic Hydrocarbons by EPA 625.1
Disalicylidenepropanediamine by EPA 625.1
Dibenzo [a,l] Pyrene w/ PAHs by EPA 625.1

Analytical results in this report apply only to samples submitted to PHYSIS in accordance with the COC and are intended to be considered in their entirety.

Please feel free to contact me at any time with any questions. PHYSIS appreciates the opportunity to provide you with our analytical and support services.

Regards,

Rachel Hansen  
714 602-5320  
Extension 203  
rachelhansen@physislabs.com

## PROJECT SAMPLE LIST

Eurofins Eaton Analytical

PHYSIS Project ID: 1407003-462

RED-HILL Project # 38001111 Job # 380-72259-1

Total Samples: 4

PHYSIS ID	Sample ID	Description	Date	Time	Matrix	Sample Type
113155	MOANALUA WELLS	380-72259-1	11/20/202	10:09	Samplewater	Not Specified
113156	AIEA GULCH WELLS PUMP 2	380-72259-2	11/20/202	11:08	Samplewater	Not Specified
113157	AIEA WELLS PUMPS 1&2 (260)	380-72259-3	11/20/202	11:35	Samplewater	Not Specified
113158	HALAWA WELLS UNITS 1 & 2 P1	380-72259-4	11/20/202	10:40	Samplewater	Not Specified

## ABBREVIATIONS and ACRONYMS

QM	Quality Manual
QA	Quality Assurance
QC	Quality Control
MDL	method detection limit
RL	reporting limit
R1	project sample
R2	project sample replicate
MS1	matrix spike
MS2	matrix spike replicate
B1	procedural blank
B2	procedural blank replicate
BS1	blank spike
BS2	blank spike replicate
LCS1	laboratory control spike
LCS2	laboratory control spike replicate
LCM1	laboratory control material
LCM2	laboratory control material replicate
CRM1	certified reference material
CRM2	certified reference material replicate
RPD	relative percent difference
LMW	low molecular weight
HMW	high molecular weight

## QUALITY ASSURANCE SUMMARY

**LABORATORY BATCH:** Physis' QM defines a laboratory batch as a group of 20 or fewer project samples of similar matrix, processed together under the same conditions and with the same reagents. QC samples are associated with each batch and were used to assess the validity of the sample analyses.

**PROCEDURAL BLANK:** Laboratory contamination introduced during method use is assessed through the preparation and analysis of procedural blanks is provided at a minimum frequency of one per batch.

**ACCURACY:** Accuracy of analytical measurements is the degree of closeness based on percent recovery calculations between measured values and the actual or true value and includes a combination of reproducibility error and systematic bias due to sampling and analytical operations. Accuracy of the project data was indicated by analysis of MS, BS, LCS, LCM, CRM, and/or surrogate spikes on a minimum frequency of one per batch. Physis' QM requires that 95% of the target compounds greater than 10 times the MDL be within the specified acceptance limits.

**PRECISION:** Precision is the agreement among a set of replicate measurements without assumption of knowledge of the true value and is based on RPD calculations between repeated values. Precision of the project data was determined by analysis of replicate MS<sub>1</sub>/MS<sub>2</sub>, BS<sub>1</sub>/BS<sub>2</sub>, LCS<sub>1</sub>/LCS<sub>2</sub>, LCM<sub>1</sub>/LCM<sub>2</sub>, CRM<sub>1</sub>/CRM<sub>2</sub>, surrogate spikes and/or replicate project sample analysis (R<sub>1</sub>/R<sub>2</sub>) on a minimum frequency of one per batch. Physis' QM requires that for 95% of the compounds greater than 10 times the MDL, the percent RPD should be within the specified acceptance range.

**BLANK SPIKES:** BS is the introduction of a known concentration of analyte into the procedural blank. BS demonstrates performance of the preparation and analytical methods on a clean matrix void of potential matrix related interferences. The BS is performed in laboratory deionized water, making these recoveries a better indicator of the efficiency of the laboratory method per se.

**MATRIX SPIKES:** MS is the introduction of a known concentration of analyte into a sample. MS samples demonstrate the effect a particular project sample matrix has on the accuracy of a measurement. Individually, MS samples also indicate the bias of analytical measurements due to chemical interferences inherent in the in the specific project sample spiked. Intrinsic target analyte concentration in the specific project sample can also significantly impact MS recovery.

**CERTIFIED REFERENCE MATERIALS:** CRMs are materials of various matrices for which analytical information has been determined and certified by a recognized authority. These are used to provide a quantitative assessment of the accuracy of an analytical method. CRMs provide evidence that the laboratory preparation and analysis produces results that are comparable to those obtained by an independent organization.

**LABORATORY CONTROL MATERIAL:** LCM is provided because a suitable natural seawater CRM is not available and can be used to indicate accuracy of the method. Physis' internal LCM is seawater collected at ~800 meters in the Southern California San Pedro Basin and can be used as a reference for background concentrations in clean, natural seawater for comparison to project samples.

**LABORATORY CONTROL SPIKES:** LCS is the introduction of a known concentration of analyte into Physis' LCM. LCS samples were employed to assess the effect the seawater matrix has on the accuracy of a measurement. LCS also indicate the bias of this method due to chemical interferences inherent in the in the seawater matrix. Intrinsic LCM concentration can also significantly impact LCS recovery.

**SURROGATES:** A surrogate is a pure analyte unlikely to be found in any project sample, behaves similarly to

the target analyte and most often used with organic analytical procedures. Surrogates are added in known concentration to all samples and are measured to indicate overall efficiency of the method including processing and analyses.

**HOLDING TIME:** Method recommended holding times are the length of time a project sample can be stored under specific conditions after collection and prior to analysis without significantly affecting the analyte's concentration. Holding times can be extended if preservation techniques are employed to reduce biodegradation, volatilization, oxidation, sorption, precipitation, and other physical and chemical processes.

**SAMPLE STORAGE/RETENTION:** In order to maintain chemical integrity prior to analysis, all samples submitted to Physis are refrigerated (liquids) or frozen (solids) upon receipt unless otherwise recommended by applicable methods. Solid samples are retained for 1 year from collection while liquid samples are retained until method recommended holding times elapse.

**TOTAL/DISSOLVED FRACTION:** In some instances, the results for the dissolved fraction may be higher than the total fraction for a particular analyte (e.g. trace metals). This is typically caused by the analytical variation for each result and indicates that the target analyte is primarily in the dissolved phase, within the sample.

## PHYSIS QUALIFIER CODES

CODE	DEFINITION
#	see Case Narrative
ND	analyte not detected at or above the MDL
B	analyte was detected in the procedural blank greater than 10 times the MDL
E	analyte concentration exceeds the upper limit of the linear calibration range, reported value is estimated
H	sample received and/or analyzed past the recommended holding time
J	analyte was detected at a concentration below the RL and above the MDL, reported value is estimated
N	insufficient sample, analysis could not be performed
M	analyte was outside the specified accuracy and/or precision acceptance limits due to matrix interference. The associated B/BS were within limits, therefore the sample data was reported without further clarification
SH	analyte concentration in the project sample exceeded the spike concentration, therefore accuracy and/or precision acceptance limits do not apply
SL	analyte results were lower than 10 times the MDL, therefore accuracy and/or precision acceptance limits do not apply
NH	project sample was heterogeneous and sample homogeneity could not be readily achieved using routine laboratory practices, therefore accuracy and/or precision acceptance limits do not apply
Q	analyte was outside the specified QAPP acceptance limits for precision and/or accuracy but within Physis derived acceptance limits, therefore the sample data was reported without further clarification
R	Physis' QM allows for 5% of the target compounds greater than 10 times the MDL to be outside the specified acceptance limits for precision and/or accuracy. This is often due to random error and does not indicate any significant problems with the analysis of these project samples



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## CASE NARRATIVE

### QUALIFIER NOTES

In addition to the use of analyte specific Physis Qualifier Codes where applicable, the following were also noted.

#### **ND**

MDL is listed due to report format restrictions; it is not used in reporting. Analytical results reported are ND at the RL.

# ANALYTICAL REPORT

TERRA AURA ENVIRONMENTAL LABORATORIES, INC.

*Innovative Solutions for Nature*

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## Base/Neutral Extractable Compounds

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
<b>Sample ID: 113155-R1</b>	<b>MOANALUA WELLS 380-72259-1</b>		<b>Matrix: Samplewater</b>							<b>Sampled: 20-Nov-23 10:09</b>	<b>Received: 27-Nov-23</b>
Disalicylideneopropanediamine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-44032	27-Nov-23	23-Dec-23
<b>Sample ID: 113156-R1</b>	<b>AIEA GULCH WELLS PUMP 2 380-7</b>		<b>Matrix: Samplewater</b>							<b>Sampled: 20-Nov-23 11:08</b>	<b>Received: 27-Nov-23</b>
Disalicylideneopropanediamine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-44032	27-Nov-23	24-Dec-23
<b>Sample ID: 113157-R1</b>	<b>AIEA WELLS PUMPS 1&amp;2 (260) 380-</b>		<b>Matrix: Samplewater</b>							<b>Sampled: 20-Nov-23 11:35</b>	<b>Received: 27-Nov-23</b>
Disalicylideneopropanediamine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-44032	27-Nov-23	24-Dec-23
<b>Sample ID: 113158-R1</b>	<b>HALAWA WELLS UNITS 1 &amp; 2 P1 38</b>		<b>Matrix: Samplewater</b>							<b>Sampled: 20-Nov-23 10:40</b>	<b>Received: 27-Nov-23</b>
Disalicylideneopropanediamine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-44032	27-Nov-23	24-Dec-23

## Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
<b>Sample ID: 113155-R1</b>	<b>MOANALUA WELLS 380-72259-1</b>	<b>Matrix: Samplewater</b>					<b>Sampled: 20-Nov-23 10:09</b>			<b>Received: 27-Nov-23</b>	
(d10-Acenaphthene)	EPA 625.1	% Recovery	77	1			Total		O-44032	27-Nov-23	23-Dec-23
(d10-Phenanthrene)	EPA 625.1	% Recovery	96	1			Total		O-44032	27-Nov-23	23-Dec-23
(d12-Chrysene)	EPA 625.1	% Recovery	87	1			Total		O-44032	27-Nov-23	23-Dec-23
(d12-Perylene)	EPA 625.1	% Recovery	101	1			Total		O-44032	27-Nov-23	23-Dec-23
(d8-Naphthalene)	EPA 625.1	% Recovery	70	1			Total		O-44032	27-Nov-23	23-Dec-23
1-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	23-Dec-23
1-Methylphenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	23-Dec-23
2,3,5-Trimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	23-Dec-23
2,6-Dimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	23-Dec-23
2-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	23-Dec-23
Acenaphthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	23-Dec-23
Acenaphthylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	23-Dec-23
Anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	23-Dec-23
Benz[a]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	23-Dec-23
Benzo[a]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	23-Dec-23
Benzo[b]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	23-Dec-23
Benzo[e]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	23-Dec-23
Benzo[g,h,i]perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	23-Dec-23
Benzo[k]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	23-Dec-23
Biphenyl	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	23-Dec-23
Chrysene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	23-Dec-23
Dibenz[a,h]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	23-Dec-23
Dibenzo[a,l]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	23-Dec-23
Dibenzothiophene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	23-Dec-23

### Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	23-Dec-23
Fluorene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	23-Dec-23
Indeno[1,2,3-cd]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	23-Dec-23
Naphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	23-Dec-23
Perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	23-Dec-23
Phenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	23-Dec-23
Pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	23-Dec-23



## Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
<b>Sample ID: 113156-R1</b>			<b>AIEA GULCH WELLS PUMP 2 380-7 Matrix: Samplewater</b>				<b>Sampled: 20-Nov-23 11:08</b>		<b>Received: 27-Nov-23</b>		
(d10-Acenaphthene)	EPA 625.1	% Recovery	77	1			Total		O-44032	27-Nov-23	24-Dec-23
(d10-Phenanthrene)	EPA 625.1	% Recovery	90	1			Total		O-44032	27-Nov-23	24-Dec-23
(d12-Chrysene)	EPA 625.1	% Recovery	82	1			Total		O-44032	27-Nov-23	24-Dec-23
(d12-Perylene)	EPA 625.1	% Recovery	103	1			Total		O-44032	27-Nov-23	24-Dec-23
(d8-Naphthalene)	EPA 625.1	% Recovery	74	1			Total		O-44032	27-Nov-23	24-Dec-23
1-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
1-Methylphenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
2,3,5-Trimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
2,6-Dimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
2-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Acenaphthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Acenaphthylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Benz[a]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Benzo[a]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Benzo[b]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Benzo[e]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Benzo[g,h,i]perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Benzo[k]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Biphenyl	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Chrysene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Dibenz[a,h]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Dibenzo[a,l]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Dibenzothiophene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23

## Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Fluorene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Indeno[1,2,3-cd]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Naphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Phenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23



## Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
<b>Sample ID: 113157-R1</b>	<b>AIEA WELLS PUMPS 1&amp;2 (260) 380- Matrix: Samplewater</b>						<b>Sampled:</b>	<b>20-Nov-23 11:35</b>	<b>Received:</b>	<b>27-Nov-23</b>	
(d10-Acenaphthene)	EPA 625.1	% Recovery	61	1			Total	O-44032	27-Nov-23	24-Dec-23	
(d10-Phenanthrene)	EPA 625.1	% Recovery	67	1			Total	O-44032	27-Nov-23	24-Dec-23	
(d12-Chrysene)	EPA 625.1	% Recovery	83	1			Total	O-44032	27-Nov-23	24-Dec-23	
(d12-Perylene)	EPA 625.1	% Recovery	96	1			Total	O-44032	27-Nov-23	24-Dec-23	
(d8-Naphthalene)	EPA 625.1	% Recovery	59	1			Total	O-44032	27-Nov-23	24-Dec-23	
1-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44032	27-Nov-23	24-Dec-23	
1-Methylphenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44032	27-Nov-23	24-Dec-23	
2,3,5-Trimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44032	27-Nov-23	24-Dec-23	
2,6-Dimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44032	27-Nov-23	24-Dec-23	
2-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44032	27-Nov-23	24-Dec-23	
Acenaphthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44032	27-Nov-23	24-Dec-23	
Acenaphthylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44032	27-Nov-23	24-Dec-23	
Anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44032	27-Nov-23	24-Dec-23	
Benz[a]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44032	27-Nov-23	24-Dec-23	
Benzo[a]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44032	27-Nov-23	24-Dec-23	
Benzo[b]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44032	27-Nov-23	24-Dec-23	
Benzo[e]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44032	27-Nov-23	24-Dec-23	
Benzo[g,h,i]perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44032	27-Nov-23	24-Dec-23	
Benzo[k]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44032	27-Nov-23	24-Dec-23	
Biphenyl	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44032	27-Nov-23	24-Dec-23	
Chrysene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44032	27-Nov-23	24-Dec-23	
Dibenz[a,h]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44032	27-Nov-23	24-Dec-23	
Dibenzo[a,l]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44032	27-Nov-23	24-Dec-23	
Dibenzothiophene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44032	27-Nov-23	24-Dec-23	

## Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Fluorene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Indeno[1,2,3-cd]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Naphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Phenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23



## Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
<b>Sample ID: 113158-R1</b>	<b>HALAWA WELLS UNITS 1 &amp; 2 P1 38 Matrix: Samplewater</b>						<b>Sampled: 20-Nov-23 10:40</b>		<b>Received: 27-Nov-23</b>		
(d10-Acenaphthene)	EPA 625.1	% Recovery	47	1			Total		O-44032	27-Nov-23	24-Dec-23
(d10-Phenanthrene)	EPA 625.1	% Recovery	53	1			Total		O-44032	27-Nov-23	24-Dec-23
(d12-Chrysene)	EPA 625.1	% Recovery	78	1			Total		O-44032	27-Nov-23	24-Dec-23
(d12-Perylene)	EPA 625.1	% Recovery	85	1			Total		O-44032	27-Nov-23	24-Dec-23
(d8-Naphthalene)	EPA 625.1	% Recovery	50	1			Total		O-44032	27-Nov-23	24-Dec-23
1-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
1-Methylphenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
2,3,5-Trimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
2,6-Dimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
2-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Acenaphthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Acenaphthylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Benz[a]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Benzo[a]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Benzo[b]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Benzo[e]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Benzo[g,h,i]perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Benzo[k]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Biphenyl	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Chrysene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Dibenz[a,h]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Dibenzo[a,l]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Dibenzothiophene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23

## Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Fluorene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Indeno[1,2,3-cd]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Naphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Phenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23
Pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44032	27-Nov-23	24-Dec-23

# QUALITY CONTROL REPORT

TERRA ENVIRONMENTAL LABORATORIES, INC. AURA

*Innovative Solutions for Nature*

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## Base/Neutral Extractable Compounds

## QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY		PRECISION		QA CODEc
							LEVEL	RESULT	%	LIMITS	%	LIMITS	
<b>Sample ID: 113154-B1</b>		<b>QAQC Procedural Blank</b>			<b>Matrix: BlankMatrix</b>			<b>Sampled:</b>		<b>Received:</b>			
		Method: EPA 625.1			Batch ID: O-44032			Prepared: 27-Nov-23		Analyzed: 23-Dec-23			
Disalicylidenepropanediamin	Total	ND	1	0.05	0.1	µg/L							
<b>Sample ID: 113154-BS1</b>		<b>QAQC Procedural Blank</b>			<b>Matrix: BlankMatrix</b>			<b>Sampled:</b>		<b>Received:</b>			
		Method: EPA 625.1			Batch ID: O-44032			Prepared: 27-Nov-23		Analyzed: 23-Dec-23			
Disalicylidenepropanediamin	Total	73.9	1	0.05	0.1	µg/L	50	0	148	50 - 150%	PASS		
<b>Sample ID: 113154-BS2</b>		<b>QAQC Procedural Blank</b>			<b>Matrix: BlankMatrix</b>			<b>Sampled:</b>		<b>Received:</b>			
		Method: EPA 625.1			Batch ID: O-44032			Prepared: 27-Nov-23		Analyzed: 23-Dec-23			
Disalicylidenepropanediamin	Total	74.2	1	0.05	0.1	µg/L	50	0	148	50 - 150%	PASS	0	30 PASS

## Polynuclear Aromatic Hydrocarbons

## QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY	PRECISION	QA CODEc
							LEVEL	RESULT	% LIMITS	% LIMITS	
<b>Sample ID: 113154-B1</b>		<b>QAQC Procedural Blank</b>			<b>Matrix: BlankMatrix</b>		<b>Sampled:</b>		<b>Received:</b>		
		Method: EPA 625.1				Batch ID: O-44032	Prepared: 27-Nov-23		Analyzed: 23-Dec-23		
(d10-Acenaphthene)	Total	89	1			% Recovery	100	89	27 - 133%	PASS	
(d10-Phenanthrene)	Total	107	1			% Recovery	100	107	43 - 129%	PASS	
(d12-Chrysene)	Total	99	1			% Recovery	100	99	52 - 144%	PASS	
(d12-Perylene)	Total	99	1			% Recovery	100	99	36 - 161%	PASS	
(d8-Naphthalene)	Total	81	1			% Recovery	100	81	25 - 125%	PASS	
1-Methylnaphthalene	Total	ND	1	0.001	0.005	µg/L					
1-Methylphenanthrene	Total	ND	1	0.001	0.005	µg/L					
2,3,5-Trimethylnaphthalene	Total	ND	1	0.001	0.005	µg/L					
2,6-Dimethylnaphthalene	Total	ND	1	0.001	0.005	µg/L					
2-Methylnaphthalene	Total	ND	1	0.001	0.005	µg/L					
Acenaphthene	Total	ND	1	0.001	0.005	µg/L					
Acenaphthylene	Total	ND	1	0.001	0.005	µg/L					
Anthracene	Total	ND	1	0.001	0.005	µg/L					
Benz[a]anthracene	Total	ND	1	0.001	0.005	µg/L					
Benzo[a]pyrene	Total	ND	1	0.001	0.005	µg/L					
Benzo[b]fluoranthene	Total	ND	1	0.001	0.005	µg/L					
Benzo[e]pyrene	Total	ND	1	0.001	0.005	µg/L					
Benzo[g,h,i]perylene	Total	ND	1	0.001	0.005	µg/L					
Benzo[k]fluoranthene	Total	ND	1	0.001	0.005	µg/L					
Biphenyl	Total	ND	1	0.001	0.005	µg/L					
Chrysene	Total	ND	1	0.001	0.005	µg/L					
Dibenz[a,h]anthracene	Total	ND	1	0.001	0.005	µg/L					
Dibenzo[a,l]pyrene	Total	ND	1	0.001	0.005	µg/L					



## Polynuclear Aromatic Hydrocarbons

## QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY		PRECISION		QA CODEc
							LEVEL	RESULT	%	LIMITS	%	LIMITS	
Dibenzothiophene	Total	ND	1	0.001	0.005	µg/L							
Fluoranthene	Total	ND	1	0.001	0.005	µg/L							
Fluorene	Total	ND	1	0.001	0.005	µg/L							
Indeno[1,2,3-cd]pyrene	Total	ND	1	0.001	0.005	µg/L							
Naphthalene	Total	ND	1	0.001	0.005	µg/L							
Perylene	Total	ND	1	0.001	0.005	µg/L							
Phenanthrene	Total	ND	1	0.001	0.005	µg/L							
Pyrene	Total	ND	1	0.001	0.005	µg/L							



## Polynuclear Aromatic Hydrocarbons

## QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY		PRECISION	QA CODEc
							LEVEL	RESULT	%	LIMITS	%	LIMITS
<b>Sample ID: 113154-BS1</b>		<b>QAQC Procedural Blank</b>			<b>Matrix: BlankMatrix</b>			<b>Sampled:</b>		<b>Received:</b>		
Method: EPA 625.1		Batch ID: O-44032			Prepared: 27-Nov-23		Analyzed: 23-Dec-23					
(d10-Acenaphthene)	Total	78	1			% Recovery	100	0	78	27 - 133%	PASS	
(d10-Phenanthrene)	Total	104	1			% Recovery	100	0	104	43 - 129%	PASS	
(d12-Chrysene)	Total	88	1			% Recovery	100	0	88	52 - 144%	PASS	
(d12-Perylene)	Total	96	1			% Recovery	100	0	96	36 - 161%	PASS	
(d8-Naphthalene)	Total	73	1			% Recovery	100	0	73	25 - 125%	PASS	
1-Methylnaphthalene	Total	0.353	1	0.001	0.005	µg/L	0.5	0	71	31 - 128%	PASS	
1-Methylphenanthrene	Total	0.47	1	0.001	0.005	µg/L	0.5	0	94	66 - 127%	PASS	
2,3,5-Trimethylnaphthalene	Total	0.411	1	0.001	0.005	µg/L	0.5	0	82	55 - 122%	PASS	
2,6-Dimethylnaphthalene	Total	0.412	1	0.001	0.005	µg/L	0.5	0	82	48 - 120%	PASS	
2-Methylnaphthalene	Total	0.371	1	0.001	0.005	µg/L	0.5	0	74	47 - 130%	PASS	
Acenaphthene	Total	0.414	1	0.001	0.005	µg/L	0.5	0	83	53 - 131%	PASS	
Acenaphthylene	Total	0.398	1	0.001	0.005	µg/L	0.5	0	80	43 - 140%	PASS	
Anthracene	Total	0.456	1	0.001	0.005	µg/L	0.5	0	91	58 - 135%	PASS	
Benz[a]anthracene	Total	0.425	1	0.001	0.005	µg/L	0.5	0	85	55 - 145%	PASS	
Benzo[a]pyrene	Total	0.468	1	0.001	0.005	µg/L	0.5	0	94	51 - 143%	PASS	
Benzo[b]fluoranthene	Total	0.487	1	0.001	0.005	µg/L	0.5	0	97	46 - 165%	PASS	
Benzo[e]pyrene	Total	0.44	1	0.001	0.005	µg/L	0.5	0	88	42 - 152%	PASS	
Benzo[g,h,i]perylene	Total	0.489	1	0.001	0.005	µg/L	0.5	0	98	63 - 133%	PASS	
Benzo[k]fluoranthene	Total	0.431	1	0.001	0.005	µg/L	0.5	0	86	56 - 145%	PASS	
Biphenyl	Total	0.389	1	0.001	0.005	µg/L	0.5	0	78	56 - 119%	PASS	
Chrysene	Total	0.516	1	0.001	0.005	µg/L	0.5	0	103	56 - 141%	PASS	
Dibenz[a,h]anthracene	Total	0.543	1	0.001	0.005	µg/L	0.5	0	109	55 - 150%	PASS	
Dibenzo[a,l]pyrene	Total	0.473	1	0.001	0.005	µg/L	0.5	0	95	50 - 150%	PASS	

## Polynuclear Aromatic Hydrocarbons

## QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY		PRECISION		QA CODEc
							LEVEL	RESULT	%	LIMITS	%	LIMITS	
Dibenzothiophene	Total	0.458	1	0.001	0.005	µg/L	0.5	0	92	46 - 126%	PASS		
Fluoranthene	Total	0.492	1	0.001	0.005	µg/L	0.5	0	98	60 - 146%	PASS		
Fluorene	Total	0.472	1	0.001	0.005	µg/L	0.5	0	94	58 - 131%	PASS		
Indeno[1,2,3-cd]pyrene	Total	0.529	1	0.001	0.005	µg/L	0.5	0	106	50 - 151%	PASS		
Naphthalene	Total	0.363	1	0.001	0.005	µg/L	0.5	0	73	41 - 126%	PASS		
Perylene	Total	0.428	1	0.001	0.005	µg/L	0.5	0	86	48 - 141%	PASS		
Phenanthrene	Total	0.477	1	0.001	0.005	µg/L	0.5	0	95	67 - 127%	PASS		
Pyrene	Total	0.481	1	0.001	0.005	µg/L	0.5	0	96	54 - 156%	PASS		



## Polynuclear Aromatic Hydrocarbons

## QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY		PRECISION		QA CODEc	
							LEVEL	RESULT	%	LIMITS	%	LIMITS		
<b>Sample ID: 113154-BS2</b>		<b>QAQC Procedural Blank</b>			<b>Matrix: BlankMatrix</b>			<b>Sampled:</b>			<b>Received:</b>			
		Method: EPA 625.1			Batch ID: O-44032			Prepared: 27-Nov-23			Analyzed: 23-Dec-23			
(d10-Acenaphthene)	Total	71	1			% Recovery	100	0	71	27 - 133%	PASS	9	30	PASS
(d10-Phenanthrene)	Total	93	1			% Recovery	100	0	93	43 - 129%	PASS	11	30	PASS
(d12-Chrysene)	Total	96	1			% Recovery	100	0	96	52 - 144%	PASS	9	30	PASS
(d12-Perylene)	Total	93	1			% Recovery	100	0	93	36 - 161%	PASS	3	30	PASS
(d8-Naphthalene)	Total	67	1			% Recovery	100	0	67	25 - 125%	PASS	9	30	PASS
1-Methylnaphthalene	Total	0.335	1	0.001	0.005	µg/L	0.5	0	67	31 - 128%	PASS	6	30	PASS
1-Methylphenanthrene	Total	0.41	1	0.001	0.005	µg/L	0.5	0	82	66 - 127%	PASS	14	30	PASS
2,3,5-Trimethylnaphthalene	Total	0.413	1	0.001	0.005	µg/L	0.5	0	83	55 - 122%	PASS	1	30	PASS
2,6-Dimethylnaphthalene	Total	0.358	1	0.001	0.005	µg/L	0.5	0	72	48 - 120%	PASS	13	30	PASS
2-Methylnaphthalene	Total	0.344	1	0.001	0.005	µg/L	0.5	0	69	47 - 130%	PASS	7	30	PASS
Acenaphthene	Total	0.375	1	0.001	0.005	µg/L	0.5	0	75	53 - 131%	PASS	10	30	PASS
Acenaphthylene	Total	0.348	1	0.001	0.005	µg/L	0.5	0	70	43 - 140%	PASS	13	30	PASS
Anthracene	Total	0.454	1	0.001	0.005	µg/L	0.5	0	91	58 - 135%	PASS	0	30	PASS
Benz[a]anthracene	Total	0.399	1	0.001	0.005	µg/L	0.5	0	80	55 - 145%	PASS	6	30	PASS
Benzo[a]pyrene	Total	0.422	1	0.001	0.005	µg/L	0.5	0	84	51 - 143%	PASS	11	30	PASS
Benzo[b]fluoranthene	Total	0.457	1	0.001	0.005	µg/L	0.5	0	91	46 - 165%	PASS	6	30	PASS
Benzo[e]pyrene	Total	0.441	1	0.001	0.005	µg/L	0.5	0	88	42 - 152%	PASS	0	30	PASS
Benzo[g,h,i]perylene	Total	0.476	1	0.001	0.005	µg/L	0.5	0	95	63 - 133%	PASS	3	30	PASS
Benzo[k]fluoranthene	Total	0.443	1	0.001	0.005	µg/L	0.5	0	89	56 - 145%	PASS	3	30	PASS
Biphenyl	Total	0.353	1	0.001	0.005	µg/L	0.5	0	71	56 - 119%	PASS	9	30	PASS
Chrysene	Total	0.553	1	0.001	0.005	µg/L	0.5	0	111	56 - 141%	PASS	7	30	PASS
Dibenz[a,h]anthracene	Total	0.515	1	0.001	0.005	µg/L	0.5	0	103	55 - 150%	PASS	6	30	PASS
Dibenzo[a,l]pyrene	Total	0.416	1	0.001	0.005	µg/L	0.5	0	83	50 - 150%	PASS	13	30	PASS

## Polynuclear Aromatic Hydrocarbons

## QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY		PRECISION		QA CODEc	
							LEVEL	RESULT	%	LIMITS	%	LIMITS		
Dibenzothiophene	Total	0.424	1	0.001	0.005	µg/L	0.5	0	85	46 - 126%	PASS	8	30	PASS
Fluoranthene	Total	0.454	1	0.001	0.005	µg/L	0.5	0	91	60 - 146%	PASS	7	30	PASS
Fluorene	Total	0.437	1	0.001	0.005	µg/L	0.5	0	87	58 - 131%	PASS	8	30	PASS
Indeno[1,2,3-cd]pyrene	Total	0.513	1	0.001	0.005	µg/L	0.5	0	103	50 - 151%	PASS	3	30	PASS
Naphthalene	Total	0.336	1	0.001	0.005	µg/L	0.5	0	67	41 - 126%	PASS	9	30	PASS
Perylene	Total	0.438	1	0.001	0.005	µg/L	0.5	0	88	48 - 141%	PASS	2	30	PASS
Phenanthrene	Total	0.445	1	0.001	0.005	µg/L	0.5	0	89	67 - 127%	PASS	7	30	PASS
Pyrene	Total	0.455	1	0.001	0.005	µg/L	0.5	0	91	54 - 156%	PASS	5	30	PASS

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# PHYSIS

**TENTATIVELY IDENTIFIED COMPOUNDS**

ENVIRONMENTAL LABORATORIES, INC.

*Innovative Solutions for Nature*

Sample ID: 113158

Retention Time	Area (% of total)	Concentration (ng/L)	Library/ID	Cas Number	Match Quality (%)
32.9437	2.6390	1111	Anthracene-D10-	1719-06-8	94
11.6625	1.6149	680	3,3-Dimethylacryloyl chloride	3350-78-5	82
11.0828	1.4892	627	2-(Chloromethyl)tetrahydropyran	18420-41-2	83
11.6625	1.3964	588	Cyclopropane, 2-bromo-1,1,3-trimethyl-	36617-00-2	82
11.0828	1.3212	556	Hexane, 2-nitro-	14255-44-8	82
10.8520	0.7486	315	Hexane, 2-bromo-	3377-86-4	85
12.7465	0.7019	296	Cyclooctane, cyclohexyl-	92369-78-3	90
13.1270	0.4680	197	Cyclohexane, octyl-	1795-15-9	86
11.9324	0.4470	188	Nonane, 4-ethyl-5-methyl-	1632-71-9	89
13.6065	0.3744	158	Cyclopentane, 1-methyl-2-(2-propenyl)-, trans-	50746-53-7	81
12.4431	0.2193	92	Decane, 3-cyclohexyl-	13151-74-1	80

Concentration estimated using the response for Anthracene-d10



Sample ID: 113155

Retention Time	Area (% of total)	Concentration (ng/L)	Library/ID	Cas Number	Match Quality (%)
32.9225	2.6566	1111	Anthracene-D10-	1719-06-8	87
64.1931	0.7859	329	1,4-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester	6422-86-2	94
11.6592	0.7093	297	3,3-Dimethylacryloyl chloride	3350-78-5	83
11.9331	0.6503	272	Octane, 4,5-diethyl-	1636-41-5	86
12.7641	0.5057	212	Cyclooctane, (1-methylpropyl)-	16538-89-9	87
12.7614	0.4976	208	Cyclohexane, 1-ethyl-2,4-dimethyl-	61142-69-6	87
29.5820	0.3375	141	Benzoic acid, 2-ethylhexyl ester	5444-75-7	85
29.5774	0.3350	140	1-Butanol, 3-methyl-, benzoate	94-46-2	84
13.1229	0.3318	139	Cyclohexane, octyl-	1795-15-9	88
13.6007	0.3291	138	Cyclohexaneethanol	4442-79-9	84
12.1780	0.2956	124	Decane, 5,6-dimethyl-	1636-43-7	89
12.6163	0.2905	122	Cyclohexane, 3-ethyl-5-methyl-1-propyl-	1000151-39-5	86
13.6013	0.2855	119	Cyclopentane, 1-methyl-2-(2-propenyl)-, trans-	50746-53-7	81
52.6474	0.2550	107	Benzyl butyl phthalate	85-68-7	80

Concentration estimated using the response for Anthracene-d10

Sample ID: 113157

Retention Time	Area (% of total)	Concentration (ng/L)	Library/ID	Cas Number	Match Quality (%)
32.9355	2.7696	1111	Anthracene-D10-	1517-22-2	93
11.6626	1.3531	543	1,5-Heptadien-4-one, 3,3,6-trimethyl-	546-49-6	81
11.6626	1.3082	525	Cyclohexane, (2-nitro-2-propenyl)-	80255-17-0	82
11.0830	0.9901	397	2-(Chloromethyl)tetrahydropyran	18420-41-2	83
12.7639	0.6399	257	Cyclooctane, cyclohexyl-	92369-78-3	88
11.9165	0.5444	218	Nonane, 4-ethyl-5-methyl-	1632-71-9	90
10.8528	0.4745	190	Methyl oxane-2-carboxylate	105441-86-9	84
13.1266	0.4623	185	Cyclohexane, octyl-	1795-15-9	84
13.6063	0.3531	142	Cyclopentane, 1-methyl-2-(2-propenyl)-, trans-	50746-53-7	84
11.9164	0.3389	136	Heptane, 2,3-dimethyl-	3074-71-3	83
29.5840	0.2268	91	Benzoic acid, 2-ethylhexyl ester	5444-75-7	80

Concentration estimated using the response for Anthracene-d10

Sample ID: 113156

Retention Time	Area (% of total)	Concentration (ng/L)	Library/ID	Cas Number	Match Quality (%)
32.5261	1.2816	1111	Anthracene-D10-	1719-06-8	88
66.3706	1.7122	1484	Squalene	111-02-4	93
11.0831	1.2795	1109	2-(Chloromethyl)tetrahydropyran	18420-41-2	82
11.0831	1.2143	1053	Hexane, 2-nitro-	14255-44-8	82
10.8520	1.0242	888	2H-Pyran-2-methanol, tetrahydro-	100-72-1	80
12.7548	0.5103	442	Cyclooctane, cyclohexyl-	92369-78-3	87
13.1247	0.4300	373	Cyclohexane, octyl-	1795-15-9	89
11.9308	0.3937	341	Nonane, 4-ethyl-5-methyl-	1632-71-9	91
12.6196	0.2526	219	Cyclohexane, 3-ethyl-5-methyl-1-propyl-	1000151-39-5	84
12.9088	0.2230	193	Cyclohexane, octyl-	1795-15-9	86
29.5811	0.2051	178	Benzoic acid, 2-ethylhexyl ester	5444-75-7	83
12.9088	0.1963	170	(Z)-(Z)-Hex-3-en-1-yl 2-methylbut-2-enoate	84060-80-0	84
12.1401	0.1803	156	Decane, 5,6-dimethyl-	1636-43-7	89
12.4492	0.1790	155	Undecane, 3-cyclohexyl-	13151-78-5	80
14.3826	0.1224	106	Cyclopentane, 1-methyl-2-(2-propenyl)-, trans-	50746-53-7	84

Concentration estimated using the response for Anthracene-d10

Sample ID: Lab Blank B1\_44032

Retention Time	Area (% of total)	Concentration (ng/L)	Library/ID	Cas Number	Match Quality (%)
32.9307	2.3762	1111	Anthracene-D10-	1517-22-2	81
11.6534	0.4726	221	1,5-Heptadien-4-one, 3,3,6-trimethyl-	546-49-6	84
12.7468	0.4056	190	Cyclooctane, cyclohexyl-	92369-78-3	89
11.9151	0.3697	173	Nonane, 4-ethyl-5-methyl-	1632-71-9	94
13.1212	0.3309	155	Cyclohexane, (1-methylethyl)-	696-29-7	86
13.5999	0.2724	127	Cyclohexaneethanol	4442-79-9	82

Concentration estimated using the response for Anthracene-d10

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# PERFORMANCE CHAIN OF CUSTODY

TERRA ENVIRONMENTAL LABORATORIES, INC. AURA

*Innovative Solutions for Nature*

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### Sample Receipt Summary

Project Iteration ID: 1407003-462  
 Client Name: Eurofins Eaton Analytical  
 Project Name: RED-HILL Project # 38001111 Job # 380-72259-1  
 COC Page Number: 2 of 2  
 Bottle Label Color: NA

**Receiving Info**  
 1. Initials Received By: hr  
 2. Date Received: 11/27/23  
 3. Time Received: 1210  
 4. Client Name: WORTHINS  
 5. Courier Information: (Please circle)  
 • Client  
 • UPS  
 • Fedex  
 • PHYSIS Driver: PCS

6. Container Information: (Please put the # of containers or circle none)  
 • Cooler  
 • Styrofoam Cooler  
 • Carboy(s)  
 • Carboy Trash Can(s)  
 • Carboy Cap(s)  
 • Other  
 • None  
 7. What type of ice was used: (Please circle any that apply)  
 • Wet Ice  
 • Blue Ice  
 • Dry Ice  
 8. Randomly Selected Samples Temperature (°C): 4.0  
 Used I/R Thermometer # 1-2  
 • None

**Inspection Info**  
 1. Initials Inspected By: RJA

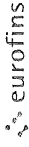
Sample Integrity Upon Receipt:

- 1. COC(s) included and completely filled out. Yes / No
- 2. All sample containers arrived intact. Yes / No
- 3. All samples listed on COC(s) are present. Yes / No
- 4. Information on containers consistent with information on COC(s). Yes / No
- 5. Correct containers and volume for all analyses indicated. Yes / No
- 6. All samples received within method holding time. Yes / No
- 7. Correct preservation used for all analyses indicated. Yes / No
- 8. Name of sampler included on COC(s). Yes / No

Notes:



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



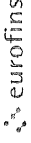
### Chain of Custody Record

<b>Client Information</b> Client Contact: Dr. Ron Fenstermacher Phone: 808-748-5840 E-Mail: <a href="mailto:Rachelle.Arada@et.euronisus.com">Rachelle.Arada@et.euronisus.com</a>		Lab PM: Arada, Rachelle State of Origin: Hawaii		Carrier Tracking No(s): 380-27941-2757 2 Page: Page 1 of 2 Job #:	
Company: City & County of Honolulu Address: 630 South Beretania Street Chemistry Lab City: Honolulu State Zip: HI, 96843 Phone: 808-748-5091 (tel) Email: <a href="mailto:rfenstermacher@hbws.org">rfenstermacher@hbws.org</a>		PWSID:		Preservation Codes: 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) Other:	
Due Date Requested: TAT Requested (days): Compliance Project <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes PC #: C20525101 exp 05312023 WO #:		Analysis Requested: SUBCONTRACT - 8915 Diesel LL (EAL) and Motor Oil SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL) SUBCONTRACT - (MOD) 525plus PLUS TICs SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL) SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL) SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL) SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)		Total Number of Containers:	
Project Name: RED-HILL/HBWS sites Event Desc. RUSH Weekly Red Hill Project #: 38001111 SOW#:		Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Special Instructions/Note:	
<b>Sample Identification</b> Sample Date: 20-Nov-2023 Sample Time:		Sample Type (C=Comp, G=grab): Preservation Code:		Matrix (W=water, S=solid, O=water/sol):	
MOANALUA WELLS AIEA GULCH WELLS PUMP2 AIEA WELLS PUMPS 1&2 (260) HALAWA WELLS UNITS 1&2		Water Water Water Water		Water Water Water Water	
TB MOANALUA WELLS TB AIEA GULCH WELLS PUMP2 TB AIEA WELLS PUMPS 1&2 (260) TB HALAWA WELLS UNITS 1&2		2 2 2 2		4 4 4 4	
Possible Hazard Identification: <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		380-72259 COC		QR Code:	
Deliverable Requested: <input type="checkbox"/> I <input type="checkbox"/> II <input type="checkbox"/> III <input type="checkbox"/> IV <input type="checkbox"/> Other (specify)		Return To Client: <input type="checkbox"/> Yes <input type="checkbox"/> No Disposal By Lab: <input type="checkbox"/> Yes <input type="checkbox"/> No Archive For: Months		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	
Empty Kit Relinquished by:		Date:		Method of Shipment:	
Relinquished by:		Date/Time:		Received by:	
Relinquished by:		Date/Time:		Received by:	
Relinquished by:		Date/Time:		Received by:	
Custody Seals Intact. <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No:		Coler Temperature(s) °C and Other Remarks:	



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

### Chain of Custody Record



<b>Client Information</b>		Lab PM	Carrier Tracking No(s)		COC No
Client Contact: Dr. Ron Fenstermacher		Arada Rachelle	State of Origin		380-27941-2757 2
Company: City & County of Honolulu		E Mail Rachelle.Arada@et.eurofins.com	Analysis Requested		Page Page 2 of 2
Address 630 South Beretania Street Chemistry Lab		Due Date Requested		Job #	
City Honolulu	TAT Requested (days)	Field Filtered Sample (Yes or No)		Preservation Codes	
State Zip HI, 96843	Compliance Project $\Delta$ No	Perform MS/MSD (Yes or No)	A HCL M Hexane B NaOH N None C Zn Acetate O AsNaO2 D Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R Na2S2O3 G - Amchlor S - H2SO4 H Ascorbic Acid T - TSP Dodecahydrate I - Ice U Acetone J DI Water V - MCAA K - EDTA W pH 4-5 L - EDA Y Trizma Z other (specify)		
Phone 808-748-5091 (tel)	PO # C20525101 exp 05312023	SUBCONTRACT - 8015 Gas (Purgeable) (LL (EAL))	537 1, DW, PREC - 537 1 Full List	Total Number of containers	
Email fenstermacher@hbws.org	WO #	SUBCONTRACT - 8915 Diesel (LL (EAL)) and Motor Oil	525 2, PREC (MOD) 525plus PLUS TICs	Special Instructions/Note:	
Project Name RED-HILL/HBWS sites Event Desc. RUSH Weekly Red Hill	Project # 38001111	SUBCONTRACT - 825 PAH Physis (LL (EAL)) + TICs	533 - All Analytes	Analysis Requested	
Site	SSOW#	R R RA	Y N	Total Number of containers	
Sample Identification		Field Filtered Sample (Yes or No)	RA RA	Special Instructions/Note:	
Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	RA RA	Total Number of containers	
20-Nov-2023		Preservation Code	Y N	Special Instructions/Note:	
		Water	3 3	Total Number of containers	
		Water	3 3	Special Instructions/Note:	
		Water	3 3	Total Number of containers	
		Water	3 3	Special Instructions/Note:	
		Water	1 1	Total Number of containers	
		Water	1 1	Special Instructions/Note:	
		Water	1 1	Total Number of containers	
		Water	1 1	Special Instructions/Note:	

**Eurofins Eaton Analytical Pomona**

941 Corporate Center Drive  
Pomona, CA 91768-2642  
Phone: 626-386-1100

**Chain of Custody Record**



eurofins

Env

Loc: 380  
**72259**

<b>Client Information (Sub Contract Lab)</b>				Sampler:		Lab PM: Arada, Rachele		Carrier Tracking No(s):		COC No: 380-92209.1			
Client Contact: Shipping/Receiving				Phone:		E-Mail: Rachele.Arada@et.eurofinsus.com		State of Origin: Hawaii		Page: Page 1 of 1			
Company: Eurofins Environment Testing Southwest,						Accreditations Required (See note): State - Hawaii							
Address: 2841 Dow Avenue, Suite 100,				Due Date Requested: 12/14/2023		<b>Analysis Requested</b>						<b>Preservation Codes:</b> A - HCL                    M - Hexane B - NaOH                N - None C - Zn Acetate        O - AsNaO2 D - Nitric Acid        P - Na2O4S E - NaHSO4            Q - Na2SO3 F - MeOH                R - Na2S2O3 G - Amchlor            S - H2SO4 H - Ascorbic Acid    T - TSP Dodecahydrate I - Ice                    U - Acetone J - DI Water            V - MCAA K - EDTA                W - pH 4-5 L - EDA                 Y - Trizma Z - other (specify)	
City: Tustin				TAT Requested (days):									
State, Zip: CA, 92780				PO #:									
Phone: 714-895-5494(Tel)				WO #:									
Email:				Project #: 38001111		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		Total Number of containers			
Project Name: RED-HILL				SSOW#:		8015B_GRO_LLJ5030C (MOD) GRO		8015B_DAV/Ethanol		8015B_DRO_LL_CS3510C_LL_HNL Ranges: C10-C24/C24-C36/C8-C18			
Site: Honolulu BWS Sites				Sample Identification - Client ID (Lab ID)		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=waste/soil, BT=Tissue, A=Air)	
				Preservation Code:								Special Instructions/Note:	
MOANALUA WELLS (380-72259-1)				11/20/23		10:09 Hawaiian		Water		X X X		6 MRLs are needed., initial volume (500ml) and final volume (2ml). MRLs are needed.	
AIEA GULCH WELLS PUMP 2 (380-72259-2)				11/20/23		11:08 Hawaiian		Water		X X X		6 MRLs are needed., initial volume (500ml) and final volume (2ml). MRLs are needed.	
AIEA WELLS PUMPS 1&2 (260) P2 (380-72259-3)				11/20/23		11:35 Hawaiian		Water		X X X		6 MRLs are needed., initial volume (500ml) and final volume (2ml). MRLs are needed.	
HALAWA WELLS UNITS 1 & 2 P1 (380-72259-4)				11/20/23		10:40 Hawaiian		Water		X X X		6 MRLs are needed., initial volume (500ml) and final volume (2ml). MRLs are needed.	
TB MOANALUA WELLS (380-72259-5)				11/20/23		10:09 Hawaiian		Water		X		2 MRLs are needed.	
TB AIEA GULCH WELLS PUMP 2 (380-72259-6)				11/20/23		11:08 Hawaiian		Water		X		2 MRLs are needed.	
TB AIEA WELLS PUMPS 1&2 (260) P2 (380-72259-7)				11/20/23		11:35 Hawaiian		Water		X		2 MRLs are needed.	
TB HALAWA WELLS UNITS 1 & 2 P1 (380-72259-8)				11/20/23		10:40 Hawaiian		Water		X		2 MRLs are needed.	
<p>Note: Since laboratory accreditations are subject to change, Eurofins Eaton Analytical, LLC places the ownership of method, analyte &amp; accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Eaton Analytical, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Eaton Analytical, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Eaton Analytical, LLC.</p>													
<b>Possible Hazard Identification</b>						<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b>							
Unconfirmed						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months							
Deliverable Requested: I, II, III, IV, Other (specify)						Primary Deliverable Rank: 2							
Special Instructions/QC Requirements:													
Empty Kit Relinquished by:				Date:		Time:		Method of Shipment:					
Relinquished by: <i>[Signature]</i>				Date/Time: 11/27/23		Company: <i>[Signature]</i>		Received by: RUBEN GARCIA					
Date/Time: 11/27/23 12:35				Company: DCS		Date/Time: 11-27-23 11:22							
Relinquished by: RUBEN GARCIA				Date/Time: 11/27/23 12:35		Company: EC		Received by: <i>[Signature]</i>					
Date/Time: 11/27/23 12:35				Company: EC		Date/Time: 11/27/23 12:35							
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No				Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 15/1A Seiz							

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# Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-72259-1

**Login Number: 72259**  
**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	

# Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-72259-1

**Login Number: 72259**  
**List Number: 2**  
**Creator: Khana, Piyush**

**List Source: Eurofins Calscience**  
**List Creation: 11/27/23 03:08 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	Seal present with no number.
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.4
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
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	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	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 <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	