

# 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

380-40536-1

# Eurofins Eaton Analytical Pomona

## Job Notes

Laboratory certifies that the test results meet all TNI 2016 and ISO/IEC 17025:2017 requirements unless noted under the individual analysis.

Following the cover page are State Certification List, ISO 17025 Accredited Method List, Acknowledgement of Samples Received, Comments, Hits Report, Data Report, QC Summary, QC Report and Regulatory Forms, as applicable.

Test results relate only to the sample(s) tested.

Test results apply to the sample(s) as received, unless otherwise noted in the comments report (ISO/IEC 17025:2017).

This report shall not be reproduced except in full, without the written approval of the laboratory.

This report includes ISO/IEC 17025 and non-ISO 17025 accredited methods.

## 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: 380-40536-1

## Qualifiers

### GC/MS Semi VOA

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

### GC/MS Semi VOA TICs

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

### LCMS

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### Subcontract

Qualifier	Qualifier Description
U	This analyte was not detected.

## Glossary

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

# Case Narrative

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

Job ID: 380-40536-1

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## Job ID: 380-40536-1

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### Laboratory: Eurofins Eaton Analytical Pomona

#### Narrative

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#### Job Narrative 380-40536-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 3/15/2023 9:50 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.0° C.

#### GC/MS Semi VOA

Method 525.2: The continuing calibration verification (CCV) associated with batch 380-34159 recovered above the upper control limit for Benzo[a]pyrene, Heptachlor epoxide (isomer B) gamma-Chlordane and alpha-Chlordane. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. MOANALUA WELLS (331-223-TP202) (380-40536-1), AIEA WELLS PUMPS 1&2 (260) (331-203-TP400) (380-40536-2), HALAWA WELLS UNITS 1 & 2 (331-206-TP065) (380-40536-3), AIEA GULCH WELLS PUMP 2 (331-202-TP072) (380-40536-4) and (CCVIS 380-34159/2)

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

#### LCMS

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

#### Subcontract non-Sister

See attached subcontract report.

#### Organic Prep

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

#### Subcontract Work

Methods 8015 Gas (Purgeable) LL (EAL), 8015 LL DRO/MRO/JP5/JP8: These methods were subcontracted to EMAX Laboratories Inc. The subcontract laboratory certifications are different from that of the facility issuing the final report.

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.

# Detection Summary

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

Job ID: 380-40536-1

**Client Sample ID: MOANALUA WELLS (331-223-TP202)**  
**PWSID Number: HI0000331**

**Lab Sample ID: 380-40536-1**

No Detections.

**Client Sample ID: AIEA WELLS PUMPS 1&2 (260)**  
**(331-203-TP400)**  
**PWSID Number: HI0000331**

**Lab Sample ID: 380-40536-2**

No Detections.

**Client Sample ID: HALAWA WELLS UNITS 1 & 2**  
**(331-206-TP065)**  
**PWSID Number: HI0000331**

**Lab Sample ID: 380-40536-3**

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	2.2		2.0	ng/L	1		533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.2		2.0	ng/L	1		533	Total/NA
Perfluorooctanoic acid (PFOA)	2.1		2.0	ng/L	1		533	Total/NA
Perfluoropentanoic acid (PFPeA)	2.1		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)	2.2		2.0	ng/L	1		537.1	Total/NA
Perfluorooctanoic acid (PFOA)	2.3		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: AIEA GULCH WELLS PUMP 2**  
**(331-202-TP072)**  
**PWSID Number: HI0000331**

**Lab Sample ID: 380-40536-4**

No Detections.

**Client Sample ID: TB:MOANALUA WELLS (331-223-TP202)**

**Lab Sample ID: 380-40536-5**

No Detections.

**Client Sample ID: TB: AIEA WELLS PUMPS 1&2 (260)**  
**(331-203-TP400)**

**Lab Sample ID: 380-40536-6**

No Detections.

**Client Sample ID: TB: HALAWA WELLS UNITS 1&2**  
**(331-206-TP065)**

**Lab Sample ID: 380-40536-7**

No Detections.

**Client Sample ID: TB:AIEA GULCH WELLS P2 (331-202-TP072)**

**Lab Sample ID: 380-40536-8**

No Detections.

**Client Sample ID: FB:MOANALUA WELLS (331-223-TP202)**

**Lab Sample ID: 380-40536-9**

No Detections.

**Client Sample ID: FB: AIEA WELLS PUMPS 1&2 (260)**  
**(331-203-TP400)**

**Lab Sample ID: 380-40536-10**

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Eaton Analytical Pomona

# Detection Summary

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

Job ID: 380-40536-1

**Client Sample ID: FB: HALAWA WELLS UNITS 1&2  
(331-206-TP065)**

**Lab Sample ID: 380-40536-11**

No Detections.

**Client Sample ID: FB:AIEA GULCH WELLS P2 (331-202-TP072)**

**Lab Sample ID: 380-40536-12**

No Detections.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18

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: 380-40536-1

**Client Sample ID: MOANALUA WELLS (331-223-TP202)**

**Lab Sample ID: 380-40536-1**

Date Collected: 03/13/23 09:51

Matrix: Drinking Water

Date Received: 03/15/23 09:50

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		0.098	ug/L		03/17/23 07:06	03/20/23 16:56	1
2,4'-DDE	ND		0.098	ug/L		03/17/23 07:06	03/20/23 16:56	1
2,4'-DDT	ND		0.098	ug/L		03/17/23 07:06	03/20/23 16:56	1
2,4-Dinitrotoluene	ND		0.098	ug/L		03/17/23 07:06	03/20/23 16:56	1
2,6-Dinitrotoluene	ND		0.098	ug/L		03/17/23 07:06	03/20/23 16:56	1
4,4'-DDD	ND		0.098	ug/L		03/17/23 07:06	03/20/23 16:56	1
4,4'-DDE	ND		0.098	ug/L		03/17/23 07:06	03/20/23 16:56	1
4,4'-DDT	ND		0.098	ug/L		03/17/23 07:06	03/20/23 16:56	1
Acenaphthene	ND		0.098	ug/L		03/17/23 07:06	03/20/23 16:56	1
Acenaphthylene	ND		0.098	ug/L		03/17/23 07:06	03/20/23 16:56	1
Acetochlor	ND		0.098	ug/L		03/17/23 07:06	03/20/23 16:56	1
Alachlor	ND		0.049	ug/L		03/17/23 07:06	03/20/23 16:56	1
alpha-BHC	ND		0.098	ug/L		03/17/23 07:06	03/20/23 16:56	1
alpha-Chlordane	ND		0.049	ug/L		03/17/23 07:06	03/20/23 16:56	1
Anthracene	ND		0.020	ug/L		03/17/23 07:06	03/20/23 16:56	1
Atrazine	ND		0.049	ug/L		03/17/23 07:06	03/20/23 16:56	1
Benz(a)anthracene	ND		0.049	ug/L		03/17/23 07:06	03/20/23 16:56	1
Benzo[a]pyrene	ND		0.020	ug/L		03/17/23 07:06	03/20/23 16:56	1
Benzo[b]fluoranthene	ND	^3+	0.020	ug/L		03/17/23 07:06	03/20/23 16:56	1
Benzo[g,h,i]perylene	ND		0.049	ug/L		03/17/23 07:06	03/20/23 16:56	1
Benzo[k]fluoranthene	ND		0.020	ug/L		03/17/23 07:06	03/20/23 16:56	1
beta-BHC	ND		0.098	ug/L		03/17/23 07:06	03/20/23 16:56	1
Bromacil	ND		0.098	ug/L		03/17/23 07:06	03/20/23 16:56	1
Butachlor	ND	^3+	0.049	ug/L		03/17/23 07:06	03/20/23 16:56	1
Butylbenzylphthalate	ND		0.49	ug/L		03/17/23 07:06	03/20/23 16:56	1
Caffeine	ND		0.049	ug/L		03/17/23 07:06	03/20/23 16:56	1
Chlorobenzilate	ND		0.098	ug/L		03/17/23 07:06	03/20/23 16:56	1
Chloroneb	ND		0.098	ug/L		03/17/23 07:06	03/20/23 16:56	1
Chlorothalonil (Draconil, Bravo)	ND		0.098	ug/L		03/17/23 07:06	03/20/23 16:56	1
Chlorpyrifos	ND		0.049	ug/L		03/17/23 07:06	03/20/23 16:56	1
Chrysene	ND		0.020	ug/L		03/17/23 07:06	03/20/23 16:56	1
delta-BHC	ND		0.098	ug/L		03/17/23 07:06	03/20/23 16:56	1
Di(2-ethylhexyl)adipate	ND		0.59	ug/L		03/17/23 07:06	03/20/23 16:56	1
Bis(2-ethylhexyl) phthalate	ND		0.59	ug/L		03/17/23 07:06	03/20/23 16:56	1
Diazinon (Qualitative)	ND		0.098	ug/L		03/17/23 07:06	03/20/23 16:56	1
Dibenz(a,h)anthracene	ND	^3+	0.049	ug/L		03/17/23 07:06	03/20/23 16:56	1
Diclorvos (DDVP)	ND		0.049	ug/L		03/17/23 07:06	03/20/23 16:56	1
Dieldrin	ND		0.20	ug/L		03/17/23 07:06	03/20/23 16:56	1
Diethylphthalate	ND		0.49	ug/L		03/17/23 07:06	03/20/23 16:56	1
Dimethoate	ND		0.098	ug/L		03/17/23 07:06	03/20/23 16:56	1
Dimethylphthalate	ND		0.49	ug/L		03/17/23 07:06	03/20/23 16:56	1
Di-n-butyl phthalate	ND		0.98	ug/L		03/17/23 07:06	03/20/23 16:56	1
Di-n-octyl phthalate	ND		0.098	ug/L		03/17/23 07:06	03/20/23 16:56	1
Endosulfan I (Alpha)	ND		0.098	ug/L		03/17/23 07:06	03/20/23 16:56	1
Endosulfan II (Beta)	ND		0.098	ug/L		03/17/23 07:06	03/20/23 16:56	1
Endosulfan sulfate	ND		0.098	ug/L		03/17/23 07:06	03/20/23 16:56	1
Endrin	ND		0.098	ug/L		03/17/23 07:06	03/20/23 16:56	1
Endrin aldehyde	ND	^3+	0.098	ug/L		03/17/23 07:06	03/20/23 16:56	1
EPTC	ND		0.098	ug/L		03/17/23 07:06	03/20/23 16:56	1

Eurofins Eaton Analytical Pomona



# Client Sample Results

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

Job ID: 380-40536-1

**Client Sample ID: MOANALUA WELLS (331-223-TP202)**

**Lab Sample ID: 380-40536-1**

**Date Collected: 03/13/23 09:51**

**Matrix: Drinking Water**

**Date Received: 03/15/23 09:50**

**PWSID Number: HI0000331**

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoranthene	ND		0.098	ug/L		03/17/23 07:06	03/20/23 16:56	1
Fluorene	ND		0.049	ug/L		03/17/23 07:06	03/20/23 16:56	1
gamma-Chlordane	ND		0.049	ug/L		03/17/23 07:06	03/20/23 16:56	1
Heptachlor	ND		0.039	ug/L		03/17/23 07:06	03/20/23 16:56	1
Heptachlor epoxide (isomer B)	ND	*+	0.049	ug/L		03/17/23 07:06	03/20/23 16:56	1
Hexachlorobenzene	ND		0.049	ug/L		03/17/23 07:06	03/20/23 16:56	1
Hexachlorocyclopentadiene	ND		0.049	ug/L		03/17/23 07:06	03/20/23 16:56	1
Indeno[1,2,3-cd]pyrene	ND		0.049	ug/L		03/17/23 07:06	03/20/23 16:56	1
Isophorone	ND		0.49	ug/L		03/17/23 07:06	03/20/23 16:56	1
Lindane	ND		0.039	ug/L		03/17/23 07:06	03/20/23 16:56	1
Malathion	ND		0.098	ug/L		03/17/23 07:06	03/20/23 16:56	1
Methoxychlor	ND		0.098	ug/L		03/17/23 07:06	03/20/23 16:56	1
Metolachlor	ND		0.049	ug/L		03/17/23 07:06	03/20/23 16:56	1
Metribuzin	ND		0.049	ug/L		03/17/23 07:06	03/20/23 16:56	1
Molinate	ND		0.098	ug/L		03/17/23 07:06	03/20/23 16:56	1
Naphthalene	ND		0.30	ug/L		03/17/23 07:06	03/20/23 16:56	1
Parathion	ND		0.098	ug/L		03/17/23 07:06	03/20/23 16:56	1
Pendimethalin (Penoxaline)	ND		0.098	ug/L		03/17/23 07:06	03/20/23 16:56	1
Total Permethrin (mixed isomers)	ND	^3+	0.20	ug/L		03/17/23 07:06	03/20/23 16:56	1
Phenanthrene	ND		0.039	ug/L		03/17/23 07:06	03/20/23 16:56	1
Propachlor	ND		0.049	ug/L		03/17/23 07:06	03/20/23 16:56	1
Pyrene	ND		0.049	ug/L		03/17/23 07:06	03/20/23 16:56	1
Simazine	ND		0.049	ug/L		03/17/23 07:06	03/20/23 16:56	1
Terbacil	ND		0.098	ug/L		03/17/23 07:06	03/20/23 16:56	1
Terbutylazine	ND		0.098	ug/L		03/17/23 07:06	03/20/23 16:56	1
Thiobencarb	ND		0.20	ug/L		03/17/23 07:06	03/20/23 16:56	1
trans-Nonachlor	ND		0.049	ug/L		03/17/23 07:06	03/20/23 16:56	1
Trifluralin	ND		0.098	ug/L		03/17/23 07:06	03/20/23 16:56	1

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Tentatively Identified Compound	None		ug/L			N/A	03/17/23 07:06	03/20/23 16:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	92		70 - 130	03/17/23 07:06	03/20/23 16:56	1
Triphenylphosphate	99		70 - 130	03/17/23 07:06	03/20/23 16:56	1
Perylene-d12	93		70 - 130	03/17/23 07:06	03/20/23 16:56	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafiuoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:28	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:28	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:28	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:28	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:28	1
Perfluorodecanoic acid (PFDA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:28	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:28	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:28	1

Eurofins Eaton Analytical Pomona

# Client Sample Results

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

Job ID: 380-40536-1

**Client Sample ID: MOANALUA WELLS (331-223-TP202)**

**Lab Sample ID: 380-40536-1**

Date Collected: 03/13/23 09:51

Matrix: Drinking Water

Date Received: 03/15/23 09:50

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:28	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:28	1
Perfluorononanoic acid (PFNA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:28	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:28	1
Perfluorooctanoic acid (PFOA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:28	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:28	1
Perfluorobutanoic acid (PFBA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:28	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:28	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:28	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:28	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:28	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:28	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:28	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:28	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:28	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:28	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:28	1
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	60		50 - 200			03/26/23 17:30	03/30/23 17:28	1
13C6 PFDA	79		50 - 200			03/26/23 17:30	03/30/23 17:28	1
13C5 PFHxA	68		50 - 200			03/26/23 17:30	03/30/23 17:28	1
13C4 PFHpA	69		50 - 200			03/26/23 17:30	03/30/23 17:28	1
13C8 PFOA	72		50 - 200			03/26/23 17:30	03/30/23 17:28	1
13C9 PFNA	74		50 - 200			03/26/23 17:30	03/30/23 17:28	1
13C7 PFUnA	71		50 - 200			03/26/23 17:30	03/30/23 17:28	1
13C2 PFDoA	73		50 - 200			03/26/23 17:30	03/30/23 17:28	1
13C4 PFBA	67		50 - 200			03/26/23 17:30	03/30/23 17:28	1
13C5 PFPeA	68		50 - 200			03/26/23 17:30	03/30/23 17:28	1
13C3 PFBS	88		50 - 200			03/26/23 17:30	03/30/23 17:28	1
13C3 PFHxS	87		50 - 200			03/26/23 17:30	03/30/23 17:28	1
13C8 PFOS	89		50 - 200			03/26/23 17:30	03/30/23 17:28	1
13C2-4:2-FTS	106		50 - 200			03/26/23 17:30	03/30/23 17:28	1
13C2-6:2-FTS	97		50 - 200			03/26/23 17:30	03/30/23 17:28	1
13C2-8:2-FTS	143		50 - 200			03/26/23 17:30	03/30/23 17:28	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)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 06:33	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 06:33	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 06:33	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 06:33	1

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# Client Sample Results

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

Job ID: 380-40536-1

**Client Sample ID: MOANALUA WELLS (331-223-TP202)**

**Lab Sample ID: 380-40536-1**

Date Collected: 03/13/23 09:51

Matrix: Drinking Water

Date Received: 03/15/23 09:50

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
N-ethylperfluorooctanesulfonamidoacetic acid (NETFOSAA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 06:33	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 06:33	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 06:33	1
Perfluorooctanoic acid (PFOA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 06:33	1
Perfluorodecanoic acid (PFDA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 06:33	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 06:33	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 06:33	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 06:33	1
Perfluorononanoic acid (PFNA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 06:33	1
Perfluorotetradecanoic acid (PFTA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 06:33	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 06:33	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 06:33	1
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 06:33	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 06:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	99		70 - 130	03/19/23 18:20	03/21/23 06:33	1
13C2 PFHxA	110		70 - 130	03/19/23 18:20	03/21/23 06:33	1
13C2 PFDA	112		70 - 130	03/19/23 18:20	03/21/23 06:33	1
13C3-GenX	110		70 - 130	03/19/23 18:20	03/21/23 06:33	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		03/17/23 00:00	03/31/23 04:12	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 04:12	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 04:12	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 04:12	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 04:12	1
Acenaphthene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 04:12	1
Acenaphthylene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 04:12	1
Anthracene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 04:12	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 04:12	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 04:12	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 04:12	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 04:12	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 04:12	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 04:12	1
Biphenyl	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 04:12	1
Chrysene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 04:12	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 04:12	1
Dibenzo[a,i]pyrene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 04:12	1
Dibenzothiophene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 04:12	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		03/17/23 00:00	03/31/23 04:12	1
Fluoranthene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 04:12	1
Fluorene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 04:12	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 04:12	1
Naphthalene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 04:12	1

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# Client Sample Results

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

Job ID: 380-40536-1

**Client Sample ID: MOANALUA WELLS (331-223-TP202)**

**Lab Sample ID: 380-40536-1**

Date Collected: 03/13/23 09:51

Matrix: Drinking Water

Date Received: 03/15/23 09:50

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
Perylene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 04:12	1
Phenanthrene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 04:12	1
Pyrene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 04:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	82		27 - 133				03/17/23 00:00	03/31/23 04:12	1
(d10-Phenanthrene)	84		43 - 129				03/17/23 00:00	03/31/23 04:12	1
(d12-Chrysene)	128		52 - 144				03/17/23 00:00	03/31/23 04:12	1
(d12-Perylene)	86		36 - 161				03/17/23 00:00	03/31/23 04:12	1
(d8-Naphthalene)	74		25 - 125				03/17/23 00:00	03/31/23 04:12	1

**Method: 8015 Gas (Purgeable) LL (EAL) - SW846 8015B Gasoline Range Organics**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GASOLINE	ND	U	0.02		mg/L			03/17/23 15:37	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
BROMOFLUOROBENZENE	89		60 - 140					03/17/23 15:37	1

**Method: 8015 LL DRO/MRO/JP5/JP8 - 8015 - TPH DRO/ORO**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DIESEL	ND	U	0.028		mg/L			03/20/23 18:56	1
JP5	ND	U	0.055		mg/L			03/20/23 18:56	1
JP8	ND	U	0.055		mg/L			03/20/23 18:56	1
MOTOR OIL	ND	U	0.055		mg/L			03/20/23 18:56	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
BROMOBENZENE	72		60 - 130					03/20/23 18:56	1
HEXACOSANE	109		60 - 130					03/20/23 18:56	1

**Client Sample ID: AIEA WELLS PUMPS 1&2 (260)  
(331-203-TP400)**

**Lab Sample ID: 380-40536-2**

Date Collected: 03/13/23 10:47

Matrix: Drinking Water

Date Received: 03/15/23 09:50

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:16	1
2,4'-DDE	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:16	1
2,4'-DDT	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:16	1
2,4-Dinitrotoluene	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:16	1
2,6-Dinitrotoluene	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:16	1
4,4'-DDD	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:16	1
4,4'-DDE	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:16	1
4,4'-DDT	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:16	1
Acenaphthene	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:16	1
Acenaphthylene	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:16	1
Acetochlor	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:16	1
Alachlor	ND		0.048	ug/L		03/17/23 07:06	03/20/23 17:16	1
alpha-BHC	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:16	1
alpha-Chlordane	ND		0.048	ug/L		03/17/23 07:06	03/20/23 17:16	1
Anthracene	ND		0.019	ug/L		03/17/23 07:06	03/20/23 17:16	1

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# Client Sample Results

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

Job ID: 380-40536-1

**Client Sample ID: AIEA WELLS PUMPS 1&2 (260)  
(331-203-TP400)**

**Lab Sample ID: 380-40536-2**

**Date Collected: 03/13/23 10:47**

**Matrix: Drinking Water**

**Date Received: 03/15/23 09:50**

**PWSID Number: HI0000331**

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Atrazine	ND		0.048	ug/L		03/17/23 07:06	03/20/23 17:16	1
Benz(a)anthracene	ND		0.048	ug/L		03/17/23 07:06	03/20/23 17:16	1
Benzo[a]pyrene	ND		0.019	ug/L		03/17/23 07:06	03/20/23 17:16	1
Benzo[b]fluoranthene	ND	^3+	0.019	ug/L		03/17/23 07:06	03/20/23 17:16	1
Benzo[g,h,i]perylene	ND		0.048	ug/L		03/17/23 07:06	03/20/23 17:16	1
Benzo[k]fluoranthene	ND		0.019	ug/L		03/17/23 07:06	03/20/23 17:16	1
beta-BHC	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:16	1
Bromacil	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:16	1
Butachlor	ND	^3+	0.048	ug/L		03/17/23 07:06	03/20/23 17:16	1
Butylbenzylphthalate	ND		0.48	ug/L		03/17/23 07:06	03/20/23 17:16	1
Caffeine	ND		0.048	ug/L		03/17/23 07:06	03/20/23 17:16	1
Chlorobenzilate	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:16	1
Chloroneb	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:16	1
Chlorothalonil (Draconil, Bravo)	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:16	1
Chlorpyrifos	ND		0.048	ug/L		03/17/23 07:06	03/20/23 17:16	1
Chrysene	ND		0.019	ug/L		03/17/23 07:06	03/20/23 17:16	1
delta-BHC	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:16	1
Di(2-ethylhexyl)adipate	ND		0.58	ug/L		03/17/23 07:06	03/20/23 17:16	1
Bis(2-ethylhexyl) phthalate	ND		0.58	ug/L		03/17/23 07:06	03/20/23 17:16	1
Diazinon (Qualitative)	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:16	1
Dibenz(a,h)anthracene	ND	^3+	0.048	ug/L		03/17/23 07:06	03/20/23 17:16	1
Diclorvos (DDVP)	ND		0.048	ug/L		03/17/23 07:06	03/20/23 17:16	1
Dieldrin	ND		0.19	ug/L		03/17/23 07:06	03/20/23 17:16	1
Diethylphthalate	ND		0.48	ug/L		03/17/23 07:06	03/20/23 17:16	1
Dimethoate	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:16	1
Dimethylphthalate	ND		0.48	ug/L		03/17/23 07:06	03/20/23 17:16	1
Di-n-butyl phthalate	ND		0.97	ug/L		03/17/23 07:06	03/20/23 17:16	1
Di-n-octyl phthalate	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:16	1
Endosulfan I (Alpha)	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:16	1
Endosulfan II (Beta)	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:16	1
Endosulfan sulfate	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:16	1
Endrin	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:16	1
Endrin aldehyde	ND	^3+	0.097	ug/L		03/17/23 07:06	03/20/23 17:16	1
EPTC	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:16	1
Fluoranthene	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:16	1
Fluorene	ND		0.048	ug/L		03/17/23 07:06	03/20/23 17:16	1
gamma-Chlordane	ND		0.048	ug/L		03/17/23 07:06	03/20/23 17:16	1
Heptachlor	ND		0.039	ug/L		03/17/23 07:06	03/20/23 17:16	1
Heptachlor epoxide (isomer B)	ND	*+	0.048	ug/L		03/17/23 07:06	03/20/23 17:16	1
Hexachlorobenzene	ND		0.048	ug/L		03/17/23 07:06	03/20/23 17:16	1
Hexachlorocyclopentadiene	ND		0.048	ug/L		03/17/23 07:06	03/20/23 17:16	1
Indeno[1,2,3-cd]pyrene	ND		0.048	ug/L		03/17/23 07:06	03/20/23 17:16	1
Isophorone	ND		0.48	ug/L		03/17/23 07:06	03/20/23 17:16	1
Lindane	ND		0.039	ug/L		03/17/23 07:06	03/20/23 17:16	1
Malathion	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:16	1
Methoxychlor	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:16	1
Metolachlor	ND		0.048	ug/L		03/17/23 07:06	03/20/23 17:16	1
Metribuzin	ND		0.048	ug/L		03/17/23 07:06	03/20/23 17:16	1

Eurofins Eaton Analytical Pomona

# Client Sample Results

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

Job ID: 380-40536-1

**Client Sample ID: AIEA WELLS PUMPS 1&2 (260)  
(331-203-TP400)**

**Lab Sample ID: 380-40536-2**

Date Collected: 03/13/23 10:47

Matrix: Drinking Water

Date Received: 03/15/23 09:50

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Molinate	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:16	1
Naphthalene	ND		0.29	ug/L		03/17/23 07:06	03/20/23 17:16	1
Parathion	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:16	1
Pendimethalin (Penoxaline)	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:16	1
Total Permethrin (mixed isomers)	ND	^3+	0.19	ug/L		03/17/23 07:06	03/20/23 17:16	1
Phenanthrene	ND		0.039	ug/L		03/17/23 07:06	03/20/23 17:16	1
Propachlor	ND		0.048	ug/L		03/17/23 07:06	03/20/23 17:16	1
Pyrene	ND		0.048	ug/L		03/17/23 07:06	03/20/23 17:16	1
Simazine	ND		0.048	ug/L		03/17/23 07:06	03/20/23 17:16	1
Terbacil	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:16	1
Terbutylazine	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:16	1
Thiobencarb	ND		0.19	ug/L		03/17/23 07:06	03/20/23 17:16	1
trans-Nonachlor	ND		0.048	ug/L		03/17/23 07:06	03/20/23 17:16	1
Trifluralin	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:16	1

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Tentatively Identified Compound	None		ug/L			N/A	03/17/23 07:06	03/20/23 17:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	94		70 - 130	03/17/23 07:06	03/20/23 17:16	1
Triphenylphosphate	99		70 - 130	03/17/23 07:06	03/20/23 17:16	1
Perylene-d12	93		70 - 130	03/17/23 07:06	03/20/23 17:16	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:39	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:39	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:39	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:39	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:39	1
Perfluorodecanoic acid (PFDA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:39	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:39	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:39	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:39	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:39	1
Perfluorononanoic acid (PFNA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:39	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:39	1
Perfluorooctanoic acid (PFOA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:39	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:39	1
Perfluorobutanoic acid (PFBA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:39	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:39	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:39	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:39	1

Eurofins Eaton Analytical Pomona

# Client Sample Results

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

Job ID: 380-40536-1

**Client Sample ID: AIEA WELLS PUMPS 1&2 (260)  
(331-203-TP400)**

**Lab Sample ID: 380-40536-2**

**Date Collected: 03/13/23 10:47**

**Matrix: Drinking Water**

**Date Received: 03/15/23 09:50**

**PWSID Number: HI0000331**

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nonafluoro-3,6-dioxiheptanoic acid (NFDHA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:39	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:39	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:39	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:39	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:39	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:39	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:39	1
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	66		50 - 200			03/26/23 17:30	03/30/23 17:39	1
13C6 PFDA	75		50 - 200			03/26/23 17:30	03/30/23 17:39	1
13C5 PFHxA	74		50 - 200			03/26/23 17:30	03/30/23 17:39	1
13C4 PFHpA	74		50 - 200			03/26/23 17:30	03/30/23 17:39	1
13C8 PFOA	77		50 - 200			03/26/23 17:30	03/30/23 17:39	1
13C9 PFNA	79		50 - 200			03/26/23 17:30	03/30/23 17:39	1
13C7 PFUnA	77		50 - 200			03/26/23 17:30	03/30/23 17:39	1
13C2 PFDoA	77		50 - 200			03/26/23 17:30	03/30/23 17:39	1
13C4 PFBA	71		50 - 200			03/26/23 17:30	03/30/23 17:39	1
13C5 PFPeA	74		50 - 200			03/26/23 17:30	03/30/23 17:39	1
13C3 PFBS	86		50 - 200			03/26/23 17:30	03/30/23 17:39	1
13C3 PFHxS	84		50 - 200			03/26/23 17:30	03/30/23 17:39	1
13C8 PFOS	81		50 - 200			03/26/23 17:30	03/30/23 17:39	1
13C2-4:2-FTS	100		50 - 200			03/26/23 17:30	03/30/23 17:39	1
13C2-6:2-FTS	89		50 - 200			03/26/23 17:30	03/30/23 17:39	1
13C2-8:2-FTS	88		50 - 200			03/26/23 17:30	03/30/23 17:39	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)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:09	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:09	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:09	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:09	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:09	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:09	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:09	1
Perfluorooctanoic acid (PFOA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:09	1
Perfluorodecanoic acid (PFDA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:09	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:09	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:09	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:09	1
Perfluorononanoic acid (PFNA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:09	1
Perfluorotetradecanoic acid (PFTA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:09	1

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# Client Sample Results

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

Job ID: 380-40536-1

**Client Sample ID: AIEA WELLS PUMPS 1&2 (260)**  
**(331-203-TP400)**

**Lab Sample ID: 380-40536-2**

**Date Collected: 03/13/23 10:47**

**Matrix: Drinking Water**

**Date Received: 03/15/23 09:50**

**PWSID Number: HI0000331**

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorotridecanoic acid (PFTTrDA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:09	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:09	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:09	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:09	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	98		70 - 130			03/19/23 18:20	03/21/23 09:09	1
13C2 PFHxA	109		70 - 130			03/19/23 18:20	03/21/23 09:09	1
13C2 PFDA	111		70 - 130			03/19/23 18:20	03/21/23 09:09	1
13C3-GenX	111		70 - 130			03/19/23 18:20	03/21/23 09:09	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		03/17/23 00:00	03/31/23 05:56	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 05:56	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 05:56	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 05:56	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 05:56	1
Acenaphthene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 05:56	1
Acenaphthylene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 05:56	1
Anthracene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 05:56	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 05:56	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 05:56	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 05:56	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 05:56	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 05:56	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 05:56	1
Biphenyl	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 05:56	1
Chrysene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 05:56	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 05:56	1
Dibenzo[a,i]pyrene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 05:56	1
Dibenzothiophene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 05:56	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		03/17/23 00:00	03/31/23 05:56	1
Fluoranthene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 05:56	1
Fluorene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 05:56	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 05:56	1
Naphthalene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 05:56	1
Perylene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 05:56	1
Phenanthrene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 05:56	1
Pyrene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 05:56	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	92		27 - 133				03/17/23 00:00	03/31/23 05:56	1
(d10-Phenanthrene)	90		43 - 129				03/17/23 00:00	03/31/23 05:56	1
(d12-Chrysene)	136		52 - 144				03/17/23 00:00	03/31/23 05:56	1
(d12-Perylene)	82		36 - 161				03/17/23 00:00	03/31/23 05:56	1
(d8-Naphthalene)	84		25 - 125				03/17/23 00:00	03/31/23 05:56	1

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# Client Sample Results

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

Job ID: 380-40536-1

**Client Sample ID: AIEA WELLS PUMPS 1&2 (260)**  
**(331-203-TP400)**

**Lab Sample ID: 380-40536-2**

Date Collected: 03/13/23 10:47

Matrix: Drinking Water

Date Received: 03/15/23 09:50

PWSID Number: HI0000331

**Method: 8015 Gas (Purgeable) LL (EAL) - SW846 8015B Gasoline Range Organics**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GASOLINE	ND	U	0.02		mg/L			03/17/23 18:02	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
BROMOFLUOROBENZENE	89		60 - 140					03/17/23 18:02	1

**Method: 8015 LL DRO/MRO/JP5/JP8 - 8015 - TPH DRO/ORO**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DIESEL	ND	U	0.024		mg/L			03/20/23 19:15	1
JP5	ND	U	0.047		mg/L			03/20/23 19:15	1
JP8	ND	U	0.047		mg/L			03/20/23 19:15	1
MOTOR OIL	ND	U	0.047		mg/L			03/20/23 19:15	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
BROMOBENZENE	73		60 - 130					03/20/23 19:15	1
HEXACOSANE	100		60 - 130					03/20/23 19:15	1

**Client Sample ID: HALAWA WELLS UNITS 1 & 2**  
**(331-206-TP065)**

**Lab Sample ID: 380-40536-3**

Date Collected: 03/13/23 10:23

Matrix: Drinking Water

Date Received: 03/15/23 09:50

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:36	1
2,4'-DDE	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:36	1
2,4'-DDT	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:36	1
2,4-Dinitrotoluene	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:36	1
2,6-Dinitrotoluene	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:36	1
4,4'-DDD	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:36	1
4,4'-DDE	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:36	1
4,4'-DDT	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:36	1
Acenaphthene	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:36	1
Acenaphthylene	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:36	1
Acetochlor	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:36	1
Alachlor	ND		0.049	ug/L		03/17/23 07:06	03/20/23 17:36	1
alpha-BHC	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:36	1
alpha-Chlordane	ND		0.049	ug/L		03/17/23 07:06	03/20/23 17:36	1
Anthracene	ND		0.019	ug/L		03/17/23 07:06	03/20/23 17:36	1
Atrazine	ND		0.049	ug/L		03/17/23 07:06	03/20/23 17:36	1
Benz(a)anthracene	ND		0.049	ug/L		03/17/23 07:06	03/20/23 17:36	1
Benzo[a]pyrene	ND		0.019	ug/L		03/17/23 07:06	03/20/23 17:36	1
Benzo[b]fluoranthene	ND	^3+	0.019	ug/L		03/17/23 07:06	03/20/23 17:36	1
Benzo[g,h,i]perylene	ND		0.049	ug/L		03/17/23 07:06	03/20/23 17:36	1
Benzo[k]fluoranthene	ND		0.019	ug/L		03/17/23 07:06	03/20/23 17:36	1
beta-BHC	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:36	1
Bromacil	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:36	1
Butachlor	ND	^3+	0.049	ug/L		03/17/23 07:06	03/20/23 17:36	1
Butylbenzylphthalate	ND		0.49	ug/L		03/17/23 07:06	03/20/23 17:36	1
Caffeine	ND		0.049	ug/L		03/17/23 07:06	03/20/23 17:36	1

Eurofins Eaton Analytical Pomona

# Client Sample Results

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

Job ID: 380-40536-1

**Client Sample ID: HALAWA WELLS UNITS 1 & 2  
(331-206-TP065)**

**Lab Sample ID: 380-40536-3**

**Date Collected: 03/13/23 10:23**

**Matrix: Drinking Water**

**Date Received: 03/15/23 09:50**

**PWSID Number: HI0000331**

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorobenzilate	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:36	1
Chloroneb	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:36	1
Chlorothalonil (Draconil, Bravo)	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:36	1
Chlorpyrifos	ND		0.049	ug/L		03/17/23 07:06	03/20/23 17:36	1
Chrysene	ND		0.019	ug/L		03/17/23 07:06	03/20/23 17:36	1
delta-BHC	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:36	1
Di(2-ethylhexyl)adipate	ND		0.58	ug/L		03/17/23 07:06	03/20/23 17:36	1
Bis(2-ethylhexyl) phthalate	ND		0.58	ug/L		03/17/23 07:06	03/20/23 17:36	1
Diazinon (Qualitative)	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:36	1
Dibenz(a,h)anthracene	ND	^3+	0.049	ug/L		03/17/23 07:06	03/20/23 17:36	1
Diclorvos (DDVP)	ND		0.049	ug/L		03/17/23 07:06	03/20/23 17:36	1
Dieldrin	ND		0.19	ug/L		03/17/23 07:06	03/20/23 17:36	1
Diethylphthalate	ND		0.49	ug/L		03/17/23 07:06	03/20/23 17:36	1
Dimethoate	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:36	1
Dimethylphthalate	ND		0.49	ug/L		03/17/23 07:06	03/20/23 17:36	1
Di-n-butyl phthalate	ND		0.97	ug/L		03/17/23 07:06	03/20/23 17:36	1
Di-n-octyl phthalate	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:36	1
Endosulfan I (Alpha)	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:36	1
Endosulfan II (Beta)	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:36	1
Endosulfan sulfate	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:36	1
Endrin	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:36	1
Endrin aldehyde	ND	^3+	0.097	ug/L		03/17/23 07:06	03/20/23 17:36	1
EPTC	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:36	1
Fluoranthene	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:36	1
Fluorene	ND		0.049	ug/L		03/17/23 07:06	03/20/23 17:36	1
gamma-Chlordane	ND		0.049	ug/L		03/17/23 07:06	03/20/23 17:36	1
Heptachlor	ND		0.039	ug/L		03/17/23 07:06	03/20/23 17:36	1
Heptachlor epoxide (isomer B)	ND	*+	0.049	ug/L		03/17/23 07:06	03/20/23 17:36	1
Hexachlorobenzene	ND		0.049	ug/L		03/17/23 07:06	03/20/23 17:36	1
Hexachlorocyclopentadiene	ND		0.049	ug/L		03/17/23 07:06	03/20/23 17:36	1
Indeno[1,2,3-cd]pyrene	ND		0.049	ug/L		03/17/23 07:06	03/20/23 17:36	1
Isophorone	ND		0.49	ug/L		03/17/23 07:06	03/20/23 17:36	1
Lindane	ND		0.039	ug/L		03/17/23 07:06	03/20/23 17:36	1
Malathion	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:36	1
Methoxychlor	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:36	1
Metolachlor	ND		0.049	ug/L		03/17/23 07:06	03/20/23 17:36	1
Metribuzin	ND		0.049	ug/L		03/17/23 07:06	03/20/23 17:36	1
Molinate	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:36	1
Naphthalene	ND		0.29	ug/L		03/17/23 07:06	03/20/23 17:36	1
Parathion	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:36	1
Pendimethalin (Penoxaline)	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:36	1
Total Permethrin (mixed isomers)	ND	^3+	0.19	ug/L		03/17/23 07:06	03/20/23 17:36	1
Phenanthrene	ND		0.039	ug/L		03/17/23 07:06	03/20/23 17:36	1
Propachlor	ND		0.049	ug/L		03/17/23 07:06	03/20/23 17:36	1
Pyrene	ND		0.049	ug/L		03/17/23 07:06	03/20/23 17:36	1
Simazine	ND		0.049	ug/L		03/17/23 07:06	03/20/23 17:36	1
Terbacil	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:36	1
Terbutylazine	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:36	1

Eurofins Eaton Analytical Pomona

# Client Sample Results

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

Job ID: 380-40536-1

**Client Sample ID: HALAWA WELLS UNITS 1 & 2  
(331-206-TP065)**

**Lab Sample ID: 380-40536-3**

Date Collected: 03/13/23 10:23

Matrix: Drinking Water

Date Received: 03/15/23 09:50

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Thiobencarb	ND		0.19	ug/L		03/17/23 07:06	03/20/23 17:36	1
trans-Nonachlor	ND		0.049	ug/L		03/17/23 07:06	03/20/23 17:36	1
Trifluralin	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:36	1

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Unknown	0.69	T J	ug/L		2.32	N/A	03/17/23 07:06	03/20/23 17:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	94		70 - 130	03/17/23 07:06	03/20/23 17:36	1
Triphenylphosphate	100		70 - 130	03/17/23 07:06	03/20/23 17:36	1
Perylene-d12	97		70 - 130	03/17/23 07:06	03/20/23 17:36	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)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:49	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:49	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:49	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:49	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:49	1
Perfluorodecanoic acid (PFDA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:49	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:49	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:49	1
<b>Perfluorohexanesulfonic acid (PFHxS)</b>	<b>2.2</b>		2.0	ng/L		03/26/23 17:30	03/30/23 17:49	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:49	1
Perfluorononanoic acid (PFNA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:49	1
<b>Perfluorooctanesulfonic acid (PFOS)</b>	<b>2.2</b>		2.0	ng/L		03/26/23 17:30	03/30/23 17:49	1
<b>Perfluorooctanoic acid (PFOA)</b>	<b>2.1</b>		2.0	ng/L		03/26/23 17:30	03/30/23 17:49	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:49	1
Perfluorobutanoic acid (PFBA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:49	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:49	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:49	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:49	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:49	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:49	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:49	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:49	1
<b>Perfluoropentanoic acid (PFPeA)</b>	<b>2.1</b>		2.0	ng/L		03/26/23 17:30	03/30/23 17:49	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:49	1

Eurofins Eaton Analytical Pomona

# Client Sample Results

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

Job ID: 380-40536-1

**Client Sample ID: HALAWA WELLS UNITS 1 & 2  
(331-206-TP065)**

**Lab Sample ID: 380-40536-3**

**Date Collected: 03/13/23 10:23**

**Matrix: Drinking Water**

**Date Received: 03/15/23 09:50**

**PWSID Number: HI0000331**

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:49	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	71		50 - 200			03/26/23 17:30	03/30/23 17:49	1
13C6 PFDA	81		50 - 200			03/26/23 17:30	03/30/23 17:49	1
13C5 PFHxA	76		50 - 200			03/26/23 17:30	03/30/23 17:49	1
13C4 PFHpA	80		50 - 200			03/26/23 17:30	03/30/23 17:49	1
13C8 PFOA	82		50 - 200			03/26/23 17:30	03/30/23 17:49	1
13C9 PFNA	83		50 - 200			03/26/23 17:30	03/30/23 17:49	1
13C7 PFUnA	79		50 - 200			03/26/23 17:30	03/30/23 17:49	1
13C2 PFDoA	78		50 - 200			03/26/23 17:30	03/30/23 17:49	1
13C4 PFBA	76		50 - 200			03/26/23 17:30	03/30/23 17:49	1
13C5 PFPeA	75		50 - 200			03/26/23 17:30	03/30/23 17:49	1
13C3 PFBS	85		50 - 200			03/26/23 17:30	03/30/23 17:49	1
13C3 PFHxS	87		50 - 200			03/26/23 17:30	03/30/23 17:49	1
13C8 PFOS	87		50 - 200			03/26/23 17:30	03/30/23 17:49	1
13C2-4:2-FTS	98		50 - 200			03/26/23 17:30	03/30/23 17:49	1
13C2-6:2-FTS	95		50 - 200			03/26/23 17:30	03/30/23 17:49	1
13C2-8:2-FTS	92		50 - 200			03/26/23 17:30	03/30/23 17:49	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)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:18	1
<b>Perfluorooctanesulfonic acid (PFOS)</b>	<b>2.1</b>		2.0	ng/L		03/19/23 18:20	03/21/23 09:18	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:18	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:18	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:18	1
<b>Perfluorohexanoic acid (PFHxA)</b>	<b>2.2</b>		2.0	ng/L		03/19/23 18:20	03/21/23 09:18	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:18	1
<b>Perfluorooctanoic acid (PFOA)</b>	<b>2.3</b>		2.0	ng/L		03/19/23 18:20	03/21/23 09:18	1
Perfluorodecanoic acid (PFDA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:18	1
<b>Perfluorohexanesulfonic acid (PFHxS)</b>	<b>2.7</b>		2.0	ng/L		03/19/23 18:20	03/21/23 09:18	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:18	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:18	1
Perfluorononanoic acid (PFNA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:18	1
Perfluorotetradecanoic acid (PFTA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:18	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:18	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:18	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:18	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:18	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>			<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
d5-NEtFOSAA	102		70 - 130			03/19/23 18:20	03/21/23 09:18	1

Eurofins Eaton Analytical Pomona

# Client Sample Results

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

Job ID: 380-40536-1

**Client Sample ID: HALAWA WELLS UNITS 1 & 2  
(331-206-TP065)**

**Lab Sample ID: 380-40536-3**

Date Collected: 03/13/23 10:23

Matrix: Drinking Water

Date Received: 03/15/23 09:50

PWSID Number: HI0000331

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

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	103		70 - 130	03/19/23 18:20	03/21/23 09:18	1
13C2 PFDA	112		70 - 130	03/19/23 18:20	03/21/23 09:18	1
13C3-GenX	109		70 - 130	03/19/23 18:20	03/21/23 09:18	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		03/17/23 00:00	03/31/23 07:40	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 07:40	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 07:40	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 07:40	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 07:40	1
Acenaphthene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 07:40	1
Acenaphthylene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 07:40	1
Anthracene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 07:40	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 07:40	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 07:40	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 07:40	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 07:40	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 07:40	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 07:40	1
Biphenyl	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 07:40	1
Chrysene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 07:40	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 07:40	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 07:40	1
Dibenzothiophene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 07:40	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		03/17/23 00:00	03/31/23 07:40	1
Fluoranthene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 07:40	1
Fluorene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 07:40	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 07:40	1
Naphthalene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 07:40	1
Perylene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 07:40	1
Phenanthrene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 07:40	1
Pyrene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 07:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	89		27 - 133	03/17/23 00:00	03/31/23 07:40	1
(d10-Phenanthrene)	89		43 - 129	03/17/23 00:00	03/31/23 07:40	1
(d12-Chrysene)	132		52 - 144	03/17/23 00:00	03/31/23 07:40	1
(d12-Perylene)	78		36 - 161	03/17/23 00:00	03/31/23 07:40	1
(d8-Naphthalene)	81		25 - 125	03/17/23 00:00	03/31/23 07:40	1

**Method: 8015 Gas (Purgeable) LL (EAL) - SW846 8015B Gasoline Range Organics**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GASOLINE	ND	U	0.02		mg/L			03/17/23 19:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
BROMOFLUOROBENZENE	86		60 - 140		03/17/23 19:13	1

Eurofins Eaton Analytical Pomona

# Client Sample Results

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

Job ID: 380-40536-1

**Client Sample ID: HALAWA WELLS UNITS 1 & 2  
(331-206-TP065)**

**Lab Sample ID: 380-40536-3**

Date Collected: 03/13/23 10:23

Matrix: Drinking Water

Date Received: 03/15/23 09:50

PWSID Number: HI0000331

**Method: 8015 LL DRO/MRO/JP5/JP8 - 8015 - TPH DRO/ORO**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DIESEL	ND	U	0.024		mg/L			03/20/23 19:52	1
JP5	ND	U	0.049		mg/L			03/20/23 19:52	1
JP8	ND	U	0.049		mg/L			03/20/23 19:52	1
MOTOR OIL	ND	U	0.049		mg/L			03/20/23 19:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
BROMOBENZENE	63		60 - 130		03/20/23 19:52	1
HEXACOSANE	99		60 - 130		03/20/23 19:52	1

**Client Sample ID: AIEA GULCH WELLS PUMP 2  
(331-202-TP072)**

**Lab Sample ID: 380-40536-4**

Date Collected: 03/13/23 11:18

Matrix: Drinking Water

Date Received: 03/15/23 09:50

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:56	1
2,4'-DDE	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:56	1
2,4'-DDT	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:56	1
2,4-Dinitrotoluene	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:56	1
2,6-Dinitrotoluene	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:56	1
4,4'-DDD	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:56	1
4,4'-DDE	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:56	1
4,4'-DDT	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:56	1
Acenaphthene	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:56	1
Acenaphthylene	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:56	1
Acetochlor	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:56	1
Alachlor	ND		0.049	ug/L		03/17/23 07:06	03/20/23 17:56	1
alpha-BHC	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:56	1
alpha-Chlordane	ND		0.049	ug/L		03/17/23 07:06	03/20/23 17:56	1
Anthracene	ND		0.019	ug/L		03/17/23 07:06	03/20/23 17:56	1
Atrazine	ND		0.049	ug/L		03/17/23 07:06	03/20/23 17:56	1
Benz(a)anthracene	ND		0.049	ug/L		03/17/23 07:06	03/20/23 17:56	1
Benzo[a]pyrene	ND		0.019	ug/L		03/17/23 07:06	03/20/23 17:56	1
Benzo[b]fluoranthene	ND	^3+	0.019	ug/L		03/17/23 07:06	03/20/23 17:56	1
Benzo[g,h,i]perylene	ND		0.049	ug/L		03/17/23 07:06	03/20/23 17:56	1
Benzo[k]fluoranthene	ND		0.019	ug/L		03/17/23 07:06	03/20/23 17:56	1
beta-BHC	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:56	1
Bromacil	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:56	1
Butachlor	ND	^3+	0.049	ug/L		03/17/23 07:06	03/20/23 17:56	1
Butylbenzylphthalate	ND		0.49	ug/L		03/17/23 07:06	03/20/23 17:56	1
Caffeine	ND		0.049	ug/L		03/17/23 07:06	03/20/23 17:56	1
Chlorobenzilate	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:56	1
Chloroneb	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:56	1
Chlorothalonil (Draconil, Bravo)	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:56	1
Chlorpyrifos	ND		0.049	ug/L		03/17/23 07:06	03/20/23 17:56	1
Chrysene	ND		0.019	ug/L		03/17/23 07:06	03/20/23 17:56	1
delta-BHC	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:56	1
Di(2-ethylhexyl)adipate	ND		0.58	ug/L		03/17/23 07:06	03/20/23 17:56	1

Eurofins Eaton Analytical Pomona

# Client Sample Results

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

Job ID: 380-40536-1

**Client Sample ID: AIEA GULCH WELLS PUMP 2  
(331-202-TP072)**

**Lab Sample ID: 380-40536-4**

**Date Collected: 03/13/23 11:18**

**Matrix: Drinking Water**

**Date Received: 03/15/23 09:50**

**PWSID Number: HI0000331**

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	ND		0.58	ug/L		03/17/23 07:06	03/20/23 17:56	1
Diazinon (Qualitative)	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:56	1
Dibenz(a,h)anthracene	ND	^3+	0.049	ug/L		03/17/23 07:06	03/20/23 17:56	1
Diclorvos (DDVP)	ND		0.049	ug/L		03/17/23 07:06	03/20/23 17:56	1
Dieldrin	ND		0.19	ug/L		03/17/23 07:06	03/20/23 17:56	1
Diethylphthalate	ND		0.49	ug/L		03/17/23 07:06	03/20/23 17:56	1
Dimethoate	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:56	1
Dimethylphthalate	ND		0.49	ug/L		03/17/23 07:06	03/20/23 17:56	1
Di-n-butyl phthalate	ND		0.97	ug/L		03/17/23 07:06	03/20/23 17:56	1
Di-n-octyl phthalate	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:56	1
Endosulfan I (Alpha)	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:56	1
Endosulfan II (Beta)	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:56	1
Endosulfan sulfate	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:56	1
Endrin	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:56	1
Endrin aldehyde	ND	^3+	0.097	ug/L		03/17/23 07:06	03/20/23 17:56	1
EPTC	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:56	1
Fluoranthene	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:56	1
Fluorene	ND		0.049	ug/L		03/17/23 07:06	03/20/23 17:56	1
gamma-Chlordane	ND		0.049	ug/L		03/17/23 07:06	03/20/23 17:56	1
Heptachlor	ND		0.039	ug/L		03/17/23 07:06	03/20/23 17:56	1
Heptachlor epoxide (isomer B)	ND	*+	0.049	ug/L		03/17/23 07:06	03/20/23 17:56	1
Hexachlorobenzene	ND		0.049	ug/L		03/17/23 07:06	03/20/23 17:56	1
Hexachlorocyclopentadiene	ND		0.049	ug/L		03/17/23 07:06	03/20/23 17:56	1
Indeno[1,2,3-cd]pyrene	ND		0.049	ug/L		03/17/23 07:06	03/20/23 17:56	1
Isophorone	ND		0.49	ug/L		03/17/23 07:06	03/20/23 17:56	1
Lindane	ND		0.039	ug/L		03/17/23 07:06	03/20/23 17:56	1
Malathion	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:56	1
Methoxychlor	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:56	1
Metolachlor	ND		0.049	ug/L		03/17/23 07:06	03/20/23 17:56	1
Metribuzin	ND		0.049	ug/L		03/17/23 07:06	03/20/23 17:56	1
Molinate	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:56	1
Naphthalene	ND		0.29	ug/L		03/17/23 07:06	03/20/23 17:56	1
Parathion	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:56	1
Pendimethalin (Penoxaline)	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:56	1
Total Permethrin (mixed isomers)	ND	^3+	0.19	ug/L		03/17/23 07:06	03/20/23 17:56	1
Phenanthrene	ND		0.039	ug/L		03/17/23 07:06	03/20/23 17:56	1
Propachlor	ND		0.049	ug/L		03/17/23 07:06	03/20/23 17:56	1
Pyrene	ND		0.049	ug/L		03/17/23 07:06	03/20/23 17:56	1
Simazine	ND		0.049	ug/L		03/17/23 07:06	03/20/23 17:56	1
Terbacil	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:56	1
Terbutylazine	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:56	1
Thiobencarb	ND		0.19	ug/L		03/17/23 07:06	03/20/23 17:56	1
trans-Nonachlor	ND		0.049	ug/L		03/17/23 07:06	03/20/23 17:56	1
Trifluralin	ND		0.097	ug/L		03/17/23 07:06	03/20/23 17:56	1

<i>Tentatively Identified Compound</i>	<i>Est. Result</i>	<i>Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>RT</i>	<i>CAS No.</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>Tentatively Identified Compound</i>	<i>None</i>		<i>ug/L</i>			<i>N/A</i>	<i>03/17/23 07:06</i>	<i>03/20/23 17:56</i>	<i>1</i>

Eurofins Eaton Analytical Pomona

# Client Sample Results

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

Job ID: 380-40536-1

**Client Sample ID: AIEA GULCH WELLS PUMP 2  
(331-202-TP072)**

**Lab Sample ID: 380-40536-4**

**Date Collected: 03/13/23 11:18**

**Matrix: Drinking Water**

**Date Received: 03/15/23 09:50**

**PWSID Number: HI0000331**

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	92		70 - 130	03/17/23 07:06	03/20/23 17:56	1
Triphenylphosphate	96		70 - 130	03/17/23 07:06	03/20/23 17:56	1
Perylene-d12	93		70 - 130	03/17/23 07:06	03/20/23 17:56	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)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 15:22	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 15:22	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 15:22	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 15:22	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 15:22	1
Perfluorodecanoic acid (PFDA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 15:22	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 15:22	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 15:22	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 15:22	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 15:22	1
Perfluorononanoic acid (PFNA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 15:22	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 15:22	1
Perfluorooctanoic acid (PFOA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 15:22	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 15:22	1
Perfluorobutanoic acid (PFBA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 15:22	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 15:22	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 15:22	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 15:22	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 15:22	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 15:22	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 15:22	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 15:22	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 15:22	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 15:22	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 15:22	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	67		50 - 200	03/26/23 17:30	03/30/23 15:22	1
13C6 PFDA	80		50 - 200	03/26/23 17:30	03/30/23 15:22	1
13C5 PFHxA	73		50 - 200	03/26/23 17:30	03/30/23 15:22	1
13C4 PFHpA	76		50 - 200	03/26/23 17:30	03/30/23 15:22	1
13C8 PFOA	78		50 - 200	03/26/23 17:30	03/30/23 15:22	1
13C9 PFNA	79		50 - 200	03/26/23 17:30	03/30/23 15:22	1
13C7 PFUnA	77		50 - 200	03/26/23 17:30	03/30/23 15:22	1

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# Client Sample Results

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

Job ID: 380-40536-1

**Client Sample ID: AIEA GULCH WELLS PUMP 2  
(331-202-TP072)**

**Lab Sample ID: 380-40536-4**

**Date Collected: 03/13/23 11:18**

**Matrix: Drinking Water**

**Date Received: 03/15/23 09:50**

**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	80		50 - 200	03/26/23 17:30	03/30/23 15:22	1
13C4 PFBA	71		50 - 200	03/26/23 17:30	03/30/23 15:22	1
13C5 PFPeA	72		50 - 200	03/26/23 17:30	03/30/23 15:22	1
13C3 PFBS	90		50 - 200	03/26/23 17:30	03/30/23 15:22	1
13C3 PFHxS	88		50 - 200	03/26/23 17:30	03/30/23 15:22	1
13C8 PFOS	85		50 - 200	03/26/23 17:30	03/30/23 15:22	1
13C2-4:2-FTS	99		50 - 200	03/26/23 17:30	03/30/23 15:22	1
13C2-6:2-FTS	90		50 - 200	03/26/23 17:30	03/30/23 15:22	1
13C2-8:2-FTS	89		50 - 200	03/26/23 17:30	03/30/23 15:22	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)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:28	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:28	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:28	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:28	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:28	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:28	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:28	1
Perfluorooctanoic acid (PFOA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:28	1
Perfluorodecanoic acid (PFDA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:28	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:28	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:28	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:28	1
Perfluorononanoic acid (PFNA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:28	1
Perfluorotetradecanoic acid (PFTA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:28	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:28	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:28	1
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:28	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	95		70 - 130	03/19/23 18:20	03/21/23 09:28	1
13C2 PFHxA	112		70 - 130	03/19/23 18:20	03/21/23 09:28	1
13C2 PFDA	103		70 - 130	03/19/23 18:20	03/21/23 09:28	1
13C3-GenX	102		70 - 130	03/19/23 18:20	03/21/23 09:28	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		03/17/23 00:00	03/31/23 09:25	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 09:25	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 09:25	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 09:25	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 09:25	1

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# Client Sample Results

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

Job ID: 380-40536-1

**Client Sample ID: AIEA GULCH WELLS PUMP 2  
(331-202-TP072)**

**Lab Sample ID: 380-40536-4**

**Date Collected: 03/13/23 11:18**

**Matrix: Drinking Water**

**Date Received: 03/15/23 09:50**

**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
Acenaphthene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 09:25	1
Acenaphthylene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 09:25	1
Anthracene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 09:25	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 09:25	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 09:25	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 09:25	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 09:25	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 09:25	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 09:25	1
Biphenyl	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 09:25	1
Chrysene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 09:25	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 09:25	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 09:25	1
Dibenzothiophene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 09:25	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		03/17/23 00:00	03/31/23 09:25	1
Fluoranthene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 09:25	1
Fluorene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 09:25	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 09:25	1
Naphthalene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 09:25	1
Perylene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 09:25	1
Phenanthrene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 09:25	1
Pyrene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/31/23 09:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	85		27 - 133	03/17/23 00:00	03/31/23 09:25	1
(d10-Phenanthrene)	86		43 - 129	03/17/23 00:00	03/31/23 09:25	1
(d12-Chrysene)	131		52 - 144	03/17/23 00:00	03/31/23 09:25	1
(d12-Perylene)	84		36 - 161	03/17/23 00:00	03/31/23 09:25	1
(d8-Naphthalene)	78		25 - 125	03/17/23 00:00	03/31/23 09:25	1

**Method: 8015 Gas (Purgeable) LL (EAL) - SW846 8015B Gasoline Range Organics**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GASOLINE	ND	U	0.02		mg/L			03/17/23 18:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
BROMOFLUOROBENZENE	87		60 - 140		03/17/23 18:38	1

**Method: 8015 LL DRO/MRO/JP5/JP8 - 8015 - TPH DRO/ORO**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DIESEL	ND	U	0.028		mg/L			03/20/23 19:33	1
JP5	ND	U	0.056		mg/L			03/20/23 19:33	1
JP8	ND	U	0.056		mg/L			03/20/23 19:33	1
MOTOR OIL	ND	U	0.056		mg/L			03/20/23 19:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
BROMOBENZENE	75		60 - 130		03/20/23 19:33	1
HEXACOSANE	106		60 - 130		03/20/23 19:33	1

Eurofins Eaton Analytical Pomona

# Client Sample Results

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

Job ID: 380-40536-1

**Client Sample ID: TB:MOANALUA WELLS (331-223-TP202)**

**Lab Sample ID: 380-40536-5**

Date Collected: 03/13/23 09:51

Matrix: Water

Date Received: 03/15/23 09:50

**Method: 8015 Gas (Purgeable) LL (EAL) - SW846 8015B Gasoline Range Organics**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GASOLINE	ND	U	0.02		mg/L			03/17/23 19:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
BROMOFLUOROBENZENE	86		60 - 140					03/17/23 19:50	1

**Client Sample ID: TB: AIEA WELLS PUMPS 1&2 (260) (331-203-TP400)**

**Lab Sample ID: 380-40536-6**

Date Collected: 03/13/23 10:47

Matrix: Water

Date Received: 03/15/23 09:50

**Method: 8015 Gas (Purgeable) LL (EAL) - SW846 8015B Gasoline Range Organics**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GASOLINE	ND	U	0.02		mg/L			03/17/23 20:26	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
BROMOFLUOROBENZENE	84		60 - 140					03/17/23 20:26	1

**Client Sample ID: TB: HALAWA WELLS UNITS 1&2 (331-206-TP065)**

**Lab Sample ID: 380-40536-7**

Date Collected: 03/13/23 10:23

Matrix: Water

Date Received: 03/15/23 09:50

**Method: 8015 Gas (Purgeable) LL (EAL) - SW846 8015B Gasoline Range Organics**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GASOLINE	ND	U	0.02		mg/L			03/17/23 21:02	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
BROMOFLUOROBENZENE	94		60 - 140					03/17/23 21:02	1

**Client Sample ID: TB:AIEA GULCH WELLS P2 (331-202-TP072)**

**Lab Sample ID: 380-40536-8**

Date Collected: 03/13/23 11:18

Matrix: Water

Date Received: 03/15/23 09:50

**Method: 8015 Gas (Purgeable) LL (EAL) - SW846 8015B Gasoline Range Organics**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GASOLINE	ND	U	0.02		mg/L			03/17/23 21:38	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
BROMOFLUOROBENZENE	87		60 - 140					03/17/23 21:38	1

**Client Sample ID: FB:MOANALUA WELLS (331-223-TP202)**

**Lab Sample ID: 380-40536-9**

Date Collected: 03/13/23 09:51

Matrix: Water

Date Received: 03/15/23 09:50

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafiuoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:58	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:58	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:58	1

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# Client Sample Results

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

Job ID: 380-40536-1

**Client Sample ID: FB:MOANALUA WELLS (331-223-TP202)**

**Lab Sample ID: 380-40536-9**

Date Collected: 03/13/23 09:51

Matrix: Water

Date Received: 03/15/23 09:50

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:58	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:58	1
Perfluorodecanoic acid (PFDA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:58	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:58	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:58	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:58	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:58	1
Perfluorononanoic acid (PFNA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:58	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:58	1
Perfluorooctanoic acid (PFOA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:58	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:58	1
Perfluorobutanoic acid (PFBA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:58	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:58	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:58	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:58	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:58	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:58	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:58	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:58	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:58	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:58	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 17:58	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	88		50 - 200	03/26/23 17:30	03/30/23 17:58	1
13C6 PFDA	81		50 - 200	03/26/23 17:30	03/30/23 17:58	1
13C5 PFHxA	91		50 - 200	03/26/23 17:30	03/30/23 17:58	1
13C4 PFHpA	86		50 - 200	03/26/23 17:30	03/30/23 17:58	1
13C8 PFOA	89		50 - 200	03/26/23 17:30	03/30/23 17:58	1
13C9 PFNA	88		50 - 200	03/26/23 17:30	03/30/23 17:58	1
13C7 PFUnA	78		50 - 200	03/26/23 17:30	03/30/23 17:58	1
13C2 PFDoA	76		50 - 200	03/26/23 17:30	03/30/23 17:58	1
13C4 PFBA	86		50 - 200	03/26/23 17:30	03/30/23 17:58	1
13C5 PFPeA	91		50 - 200	03/26/23 17:30	03/30/23 17:58	1
13C3 PFBS	87		50 - 200	03/26/23 17:30	03/30/23 17:58	1
13C3 PFHxS	89		50 - 200	03/26/23 17:30	03/30/23 17:58	1
13C8 PFOS	89		50 - 200	03/26/23 17:30	03/30/23 17:58	1
13C2-4:2-FTS	99		50 - 200	03/26/23 17:30	03/30/23 17:58	1
13C2-6:2-FTS	92		50 - 200	03/26/23 17:30	03/30/23 17:58	1
13C2-8:2-FTS	87		50 - 200	03/26/23 17:30	03/30/23 17:58	1

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# Client Sample Results

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

Job ID: 380-40536-1

**Client Sample ID: FB:MOANALUA WELLS (331-223-TP202)**

**Lab Sample ID: 380-40536-9**

**Date Collected: 03/13/23 09:51**

**Matrix: Water**

**Date Received: 03/15/23 09:50**

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:37	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:37	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:37	1
N-methylperfluorooctanesulfonamide acetic acid (NMeFOSAA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:37	1
N-ethylperfluorooctanesulfonamide acetic acid (NEtFOSAA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:37	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:37	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:37	1
Perfluorooctanoic acid (PFOA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:37	1
Perfluorodecanoic acid (PFDA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:37	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:37	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:37	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:37	1
Perfluorononanoic acid (PFNA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:37	1
Perfluorotetradecanoic acid (PFTA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:37	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:37	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:37	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:37	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:37	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>			<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
d5-NEtFOSAA	96		70 - 130			03/19/23 18:20	03/21/23 09:37	1
13C2 PFHxA	107		70 - 130			03/19/23 18:20	03/21/23 09:37	1
13C2 PFDA	110		70 - 130			03/19/23 18:20	03/21/23 09:37	1
13C3-GenX	110		70 - 130			03/19/23 18:20	03/21/23 09:37	1

**Client Sample ID: FB: AIEA WELLS PUMPS 1&2 (260) (331-203-TP400)**

**Lab Sample ID: 380-40536-10**

**Date Collected: 03/13/23 10:47**

**Matrix: Water**

**Date Received: 03/15/23 09:50**

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 18:08	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 18:08	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 18:08	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 18:08	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 18:08	1
Perfluorodecanoic acid (PFDA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 18:08	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 18:08	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 18:08	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 18:08	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 18:08	1

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# Client Sample Results

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

Job ID: 380-40536-1

**Client Sample ID: FB: AIEA WELLS PUMPS 1&2 (260)  
(331-203-TP400)**

**Lab Sample ID: 380-40536-10**

**Date Collected: 03/13/23 10:47**

**Matrix: Water**

**Date Received: 03/15/23 09:50**

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid (PFNA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 18:08	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 18:08	1
Perfluorooctanoic acid (PFOA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 18:08	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 18:08	1
Perfluorobutanoic acid (PFBA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 18:08	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 18:08	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 18:08	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 18:08	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 18:08	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 18:08	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 18:08	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 18:08	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 18:08	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 18:08	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 18:08	1
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	82		50 - 200			03/26/23 17:30	03/30/23 18:08	1
13C6 PFDA	82		50 - 200			03/26/23 17:30	03/30/23 18:08	1
13C5 PFHxA	84		50 - 200			03/26/23 17:30	03/30/23 18:08	1
13C4 PFHpA	84		50 - 200			03/26/23 17:30	03/30/23 18:08	1
13C8 PFOA	89		50 - 200			03/26/23 17:30	03/30/23 18:08	1
13C9 PFNA	84		50 - 200			03/26/23 17:30	03/30/23 18:08	1
13C7 PFUnA	80		50 - 200			03/26/23 17:30	03/30/23 18:08	1
13C2 PFDoA	82		50 - 200			03/26/23 17:30	03/30/23 18:08	1
13C4 PFBA	89		50 - 200			03/26/23 17:30	03/30/23 18:08	1
13C5 PFPeA	91		50 - 200			03/26/23 17:30	03/30/23 18:08	1
13C3 PFBS	87		50 - 200			03/26/23 17:30	03/30/23 18:08	1
13C3 PFHxS	87		50 - 200			03/26/23 17:30	03/30/23 18:08	1
13C8 PFOS	84		50 - 200			03/26/23 17:30	03/30/23 18:08	1
13C2-4:2-FTS	98		50 - 200			03/26/23 17:30	03/30/23 18:08	1
13C2-6:2-FTS	94		50 - 200			03/26/23 17:30	03/30/23 18:08	1
13C2-8:2-FTS	88		50 - 200			03/26/23 17:30	03/30/23 18:08	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)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:47	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:47	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:47	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:47	1

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# Client Sample Results

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

Job ID: 380-40536-1

**Client Sample ID: FB: AIEA WELLS PUMPS 1&2 (260)**  
**(331-203-TP400)**

**Lab Sample ID: 380-40536-10**

**Date Collected: 03/13/23 10:47**

**Matrix: Water**

**Date Received: 03/15/23 09:50**

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:47	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:47	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:47	1
Perfluorooctanoic acid (PFOA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:47	1
Perfluorodecanoic acid (PFDA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:47	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:47	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:47	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:47	1
Perfluorononanoic acid (PFNA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:47	1
Perfluorotetradecanoic acid (PFTA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:47	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:47	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:47	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:47	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:47	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>			<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
d5-NEtFOSAA	91		70 - 130			03/19/23 18:20	03/21/23 09:47	1
13C2 PFHxA	111		70 - 130			03/19/23 18:20	03/21/23 09:47	1
13C2 PFDA	108		70 - 130			03/19/23 18:20	03/21/23 09:47	1
13C3-GenX	105		70 - 130			03/19/23 18:20	03/21/23 09:47	1

**Client Sample ID: FB: HALAWA WELLS UNITS 1&2**  
**(331-206-TP065)**

**Lab Sample ID: 380-40536-11**

**Date Collected: 03/13/23 10:23**

**Matrix: Water**

**Date Received: 03/15/23 09:50**

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 13:51	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 13:51	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 13:51	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 13:51	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 13:51	1
Perfluorodecanoic acid (PFDA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 13:51	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 13:51	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 13:51	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 13:51	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 13:51	1
Perfluorononanoic acid (PFNA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 13:51	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 13:51	1
Perfluorooctanoic acid (PFOA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 13:51	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 13:51	1
Perfluorobutanoic acid (PFBA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 13:51	1

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# Client Sample Results

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

Job ID: 380-40536-1

**Client Sample ID: FB: HALAWA WELLS UNITS 1&2  
(331-206-TP065)**

**Lab Sample ID: 380-40536-11**

**Date Collected: 03/13/23 10:23**

**Matrix: Water**

**Date Received: 03/15/23 09:50**

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 13:51	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 13:51	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 13:51	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 13:51	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 13:51	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 13:51	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 13:51	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 13:51	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 13:51	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 13:51	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	92		50 - 200	03/30/23 12:35	04/01/23 13:51	1
13C6 PFDA	89		50 - 200	03/30/23 12:35	04/01/23 13:51	1
13C5 PFHxA	101		50 - 200	03/30/23 12:35	04/01/23 13:51	1
13C4 PFHpA	96		50 - 200	03/30/23 12:35	04/01/23 13:51	1
13C8 PFOA	93		50 - 200	03/30/23 12:35	04/01/23 13:51	1
13C9 PFNA	94		50 - 200	03/30/23 12:35	04/01/23 13:51	1
13C7 PFUnA	85		50 - 200	03/30/23 12:35	04/01/23 13:51	1
13C2 PFDoA	86		50 - 200	03/30/23 12:35	04/01/23 13:51	1
13C4 PFBA	99		50 - 200	03/30/23 12:35	04/01/23 13:51	1
13C5 PFPeA	99		50 - 200	03/30/23 12:35	04/01/23 13:51	1
13C3 PFBS	96		50 - 200	03/30/23 12:35	04/01/23 13:51	1
13C3 PFHxS	96		50 - 200	03/30/23 12:35	04/01/23 13:51	1
13C8 PFOS	95		50 - 200	03/30/23 12:35	04/01/23 13:51	1
13C2-4:2-FTS	110		50 - 200	03/30/23 12:35	04/01/23 13:51	1
13C2-6:2-FTS	96		50 - 200	03/30/23 12:35	04/01/23 13:51	1
13C2-8:2-FTS	96		50 - 200	03/30/23 12:35	04/01/23 13:51	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:57	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:57	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:57	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:57	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:57	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:57	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:57	1
Perfluorooctanoic acid (PFOA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:57	1
Perfluorodecanoic acid (PFDA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:57	1

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# Client Sample Results

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

Job ID: 380-40536-1

**Client Sample ID: FB: HALAWA WELLS UNITS 1&2  
(331-206-TP065)**

**Lab Sample ID: 380-40536-11**

**Date Collected: 03/13/23 10:23**

**Matrix: Water**

**Date Received: 03/15/23 09:50**

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:57	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:57	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:57	1
Perfluorononanoic acid (PFNA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:57	1
Perfluorotetradecanoic acid (PFTA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:57	1
Perfluorotridecanoic acid (PFTDA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:57	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:57	1
11-Chloroeicosafuoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:57	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 09:57	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	100		70 - 130			03/19/23 18:20	03/21/23 09:57	1
13C2 PFHxA	113		70 - 130			03/19/23 18:20	03/21/23 09:57	1
13C2 PFDA	111		70 - 130			03/19/23 18:20	03/21/23 09:57	1
13C3-GenX	110		70 - 130			03/19/23 18:20	03/21/23 09:57	1

**Client Sample ID: FB:AIEA GULCH WELLS P2 (331-202-TP072)**

**Lab Sample ID: 380-40536-12**

**Date Collected: 03/13/23 11:18**

**Matrix: Water**

**Date Received: 03/15/23 09:50**

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafuoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 14:01	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 14:01	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 14:01	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 14:01	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 14:01	1
Perfluorodecanoic acid (PFDA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 14:01	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 14:01	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 14:01	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 14:01	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 14:01	1
Perfluorononanoic acid (PFNA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 14:01	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 14:01	1
Perfluorooctanoic acid (PFOA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 14:01	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 14:01	1
Perfluorobutanoic acid (PFBA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 14:01	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 14:01	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 14:01	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 14:01	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 14:01	1

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# Client Sample Results

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

Job ID: 380-40536-1

**Client Sample ID: FB:AIEA GULCH WELLS P2 (331-202-TP072)**

**Lab Sample ID: 380-40536-12**

**Date Collected: 03/13/23 11:18**

**Matrix: Water**

**Date Received: 03/15/23 09:50**

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 14:01	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 14:01	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 14:01	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 14:01	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 14:01	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 14:01	1
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	87		50 - 200			03/30/23 12:35	04/01/23 14:01	1
13C6 PFDA	86		50 - 200			03/30/23 12:35	04/01/23 14:01	1
13C5 PFHxA	101		50 - 200			03/30/23 12:35	04/01/23 14:01	1
13C4 PFHpA	96		50 - 200			03/30/23 12:35	04/01/23 14:01	1
13C8 PFOA	94		50 - 200			03/30/23 12:35	04/01/23 14:01	1
13C9 PFNA	95		50 - 200			03/30/23 12:35	04/01/23 14:01	1
13C7 PFUnA	85		50 - 200			03/30/23 12:35	04/01/23 14:01	1
13C2 PFDoA	86		50 - 200			03/30/23 12:35	04/01/23 14:01	1
13C4 PFBA	95		50 - 200			03/30/23 12:35	04/01/23 14:01	1
13C5 PFPeA	101		50 - 200			03/30/23 12:35	04/01/23 14:01	1
13C3 PFBS	100		50 - 200			03/30/23 12:35	04/01/23 14:01	1
13C3 PFHxS	96		50 - 200			03/30/23 12:35	04/01/23 14:01	1
13C8 PFOS	95		50 - 200			03/30/23 12:35	04/01/23 14:01	1
13C2-4:2-FTS	105		50 - 200			03/30/23 12:35	04/01/23 14:01	1
13C2-6:2-FTS	97		50 - 200			03/30/23 12:35	04/01/23 14:01	1
13C2-8:2-FTS	89		50 - 200			03/30/23 12:35	04/01/23 14:01	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 10:06	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 10:06	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 10:06	1
N-methylperfluorooctanesulfonamide acetic acid (NMeFOSAA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 10:06	1
N-ethylperfluorooctanesulfonamide acetic acid (NEtFOSAA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 10:06	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 10:06	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 10:06	1
Perfluorooctanoic acid (PFOA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 10:06	1
Perfluorodecanoic acid (PFDA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 10:06	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 10:06	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 10:06	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 10:06	1
Perfluorononanoic acid (PFNA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 10:06	1
Perfluorotetradecanoic acid (PFTA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 10:06	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 10:06	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 10:06	1

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# Client Sample Results

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

Job ID: 380-40536-1

**Client Sample ID: FB:AIEA GULCH WELLS P2 (331-202-TP072)**

**Lab Sample ID: 380-40536-12**

**Date Collected: 03/13/23 11:18**

**Matrix: Water**

**Date Received: 03/15/23 09:50**

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafuoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 10:06	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 10:06	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	91		70 - 130			03/19/23 18:20	03/21/23 10:06	1
13C2 PFHxA	106		70 - 130			03/19/23 18:20	03/21/23 10:06	1
13C2 PFDA	104		70 - 130			03/19/23 18:20	03/21/23 10:06	1
13C3-GenX	100		70 - 130			03/19/23 18:20	03/21/23 10:06	1

# Action Limit Summary

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

Job ID: 380-40536-1

**Client Sample ID: MOANALUA WELLS (331-223-TP202)**

**Lab Sample ID: 380-40536-1**

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

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

**Lab Sample ID: 380-40536-2**

**(331-203-TP400)**

**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		Prep Type
				Limit	RL Method	
Alachlor	ND		ug/L	2	0.048 525.2	Total/NA
Atrazine	ND		ug/L	3	0.048 525.2	Total/NA
Benzo[a]pyrene	ND		ug/L	0.2	0.019 525.2	Total/NA
Di(2-ethylhexyl)adipate	ND		ug/L	400	0.58 525.2	Total/NA
Bis(2-ethylhexyl) phthalate	ND		ug/L	6	0.58 525.2	Total/NA
Endrin	ND		ug/L	2	0.097 525.2	Total/NA
Heptachlor	ND		ug/L	0.4	0.039 525.2	Total/NA
Heptachlor epoxide (isomer B)	ND	*+	ug/L	0.2	0.048 525.2	Total/NA
Hexachlorobenzene	ND		ug/L	1	0.048 525.2	Total/NA
Hexachlorocyclopentadiene	ND		ug/L	50	0.048 525.2	Total/NA
Lindane	ND		ug/L	0.2	0.039 525.2	Total/NA
Methoxychlor	ND		ug/L	40	0.097 525.2	Total/NA
Simazine	ND		ug/L	4	0.048 525.2	Total/NA

# Action Limit Summary

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

Job ID: 380-40536-1

**Client Sample ID: HALAWA WELLS UNITS 1 & 2**  
**(331-206-TP065)**  
**PWSID Number: HI0000331**

**Lab Sample ID: 380-40536-3**

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

**Client Sample ID: AIEA GULCH WELLS PUMP 2**  
**(331-202-TP072)**  
**PWSID Number: HI0000331**

**Lab Sample ID: 380-40536-4**

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

# Surrogate Summary

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

Job ID: 380-40536-1

## 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)	TPP (70-130)	PRY (70-130)
380-40536-1	MOANALUA WELLS (331-223-T	92	99	93
380-40536-2	AIEA WELLS PUMPS 1&2 (260) (331-203-TP400)	94	99	93
380-40536-3	HALAWA WELLS UNITS 1 & 2 (331-206-TP065)	94	100	97
380-40536-4	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	92	96	93

### Surrogate Legend

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

## 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)	TPP (70-130)	PRY (70-130)
380-40369-AP-1-A MS	Matrix Spike	96	125	98
380-40396-AJ-1-A DU	Duplicate	97	121	93
LCS 380-33997/3-A	Lab Control Sample	97	118	96
LCSD 380-33997/4-A	Lab Control Sample Dup	97	122	95
MB 380-33997/1-A	Method Blank	96	115	81
MRL 380-33997/2-A	Lab Control Sample	97	115	89

### Surrogate Legend

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

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

Matrix: Drinking Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		d5NEFOS (70-130)	PFHxA (70-130)	PFDA (70-130)	GenX (70-130)
380-40536-1	MOANALUA WELLS (331-223-T	99	110	112	110
380-40536-1 MS	MOANALUA WELLS (331-223-TP202)	91	105	103	107
380-40536-1 MSD	MOANALUA WELLS (331-223-TP202)	86	110	107	108
380-40536-2	AIEA WELLS PUMPS 1&2 (260) (331-203-TP400)	98	109	111	111
380-40536-3	HALAWA WELLS UNITS 1 & 2 (331-206-TP065)	102	103	112	109
380-40536-4	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	95	112	103	102

### Surrogate Legend

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

# Surrogate Summary

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

Job ID: 380-40536-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		d5NEFOS (70-130)	PFHxA (70-130)	PFDA (70-130)	GenX (70-130)
380-40536-9	FB:MOANALUA WELLS (331-223-T	96	107	110	110
380-40536-10	FB: AIEA WELLS PUMPS 1&2 (260) (331-203-TP400)	91	111	108	105
380-40536-11	FB: HALAWA WELLS UNITS 1&2 (331-206-TP065)	100	113	111	110
380-40536-12	FB:AIEA GULCH WELLS P2 (331-202-TP072)	91	106	104	100
LCS 380-34117/23-A	Lab Control Sample	93	107	104	105
LCSD 380-34117/24-A	Lab Control Sample Dup	90	106	103	106
MB 380-34117/21-A	Method Blank	86	99	107	96
MRL 380-34117/22-A	Lab Control Sample	91	105	107	105

**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)
104592-B1	Method Blank	91	90	137	86	82
104592-BS1	Lab Control Sample	92	91	136	85	90
104592-BS2	Lab Control Sample Dup	87	91	138	78	90

**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)
380-40536-1	MOANALUA WELLS (331-223-T	82	84	128	74	86
380-40536-2	AIEA WELLS PUMPS 1&2 (260) (331-203-TP400)	92	90	136	84	82
380-40536-3	HALAWA WELLS UNITS 1 & 2 (331-206-TP065)	89	89	132	81	78
380-40536-4	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	85	86	131	78	84

**Surrogate Legend**

(d10-Acenaphthene) = (d10-Acenaphthene)  
(d10-Phenanthrene) = (d10-Phenanthrene)  
CRY = (d12-Chrysene)

# Surrogate Summary

Client: City & County of Honolulu

Job ID: 380-40536-1

Project/Site: RED-HILL

NPT = (d8-Naphthalene)

PRY = (d12-Perylene)

## Method: 8015 Gas (Purgeable) LL (EAL) - SW846 8015B Gasoline Range Organics

Matrix: Drinking Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB (60-140)
380-40536-1	MOANALUA WELLS (331-223-T	89
380-40536-2	AIEA WELLS PUMPS 1&2 (260) (331-203-TP400)	89
380-40536-3	HALAWA WELLS UNITS 1 & 2 (331-206-TP065)	86
380-40536-4	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	87

#### Surrogate Legend

BFB = BROMOFLUOROBENZENE

## Method: 8015 Gas (Purgeable) LL (EAL) - SW846 8015B Gasoline Range Organics

Matrix: WATER

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB (60-140)
23C236-01M	Matrix Spike	114
23C236-01S	Matrix Spike Duplicate	116

#### Surrogate Legend

BFB = BROMOFLUOROBENZENE

## Method: 8015 Gas (Purgeable) LL (EAL) - SW846 8015B Gasoline Range Organics

Matrix: WATER

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB
23VG39C05B	Method Blank	

#### Surrogate Legend

BFB = BROMOFLUOROBENZENE

## Method: 8015 Gas (Purgeable) LL (EAL) - SW846 8015B Gasoline Range Organics

Matrix: WATER

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB (70-130)
23VG39C05C	LCD	113
23VG39C05L	Lab Control Sample	115

#### Surrogate Legend

BFB = BROMOFLUOROBENZENE



# Surrogate Summary

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

Job ID: 380-40536-1

**Method: 8015 Gas (Purgeable) LL (EAL) - SW846 8015B Gasoline Range Organics**

**Matrix: Water**

**Prep Type: Total/NA**

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB (60-140)
380-40536-5	TB:MOANALUA WELLS (331-223-T)	86
380-40536-6	TB: AIEA WELLS PUMPS 1&2 (260) (331-203-TP400)	84
380-40536-7	TB: HALAWA WELLS UNITS 1&2 (331-206-TP065)	94
380-40536-8	TB:AIEA GULCH WELLS P2 (331-202-TP072)	87

**Surrogate Legend**

BFB = BROMOFLUOROBENZENE

**Method: 8015 LL DRO/MRO/JP5/JP8 - 8015 - TPH DRO/ORO**

**Matrix: Drinking Water**

**Prep Type: Total/NA**

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BB (60-130)	XACOSAI (60-130)
380-40536-1	MOANALUA WELLS (331-223-T)	72	109
380-40536-2	AIEA WELLS PUMPS 1&2 (260) (331-203-TP400)	73	100
380-40536-3	HALAWA WELLS UNITS 1 & 2 (331-206-TP065)	63	99
380-40536-4	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	75	106

**Surrogate Legend**

BB = BROMOBENZENE

HEXACOSANE = HEXACOSANE

**Method: 8015 LL DRO/MRO/JP5/JP8 - 8015 - TPH DRO/ORO**

**Matrix: WATER**

**Prep Type: Total/NA**

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BB (60-130)	XACOSAI (60-130)
23DSC021WC	LCD	80	106
23DSC021WL	Lab Control Sample	89	113
23J5C021WC	LCD	88	99
23J5C021WL	Lab Control Sample	83	98
23J8C021WC	LCD	99	112
23J8C021WL	Lab Control Sample	93	101

**Surrogate Legend**

BB = BROMOBENZENE

HEXACOSANE = HEXACOSANE

**Method: 8015 LL DRO/MRO/JP5/JP8 - 8015 - TPH DRO/ORO**

**Matrix: WATER**

**Prep Type: Total/NA**

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BB	XACOSAI
23DSC021WB	Method Blank		

**Surrogate Legend**

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# Surrogate Summary

Client: City & County of Honolulu  
Project/Site: RED-HILL  
BB = BROMOBENZENE  
HEXACOSANE = HEXACOSANE

Job ID: 380-40536-1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18

# Isotope Dilution Summary

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

Job ID: 380-40536-1

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

Matrix: Drinking Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		HFPODA (50-200)	C6PFDA (50-200)	13C5PHA (50-200)	C4PFHA (50-200)	C8PFOA (50-200)	C9PFNA (50-200)	13C7PUA (50-200)	PFDoA (50-200)
380-40536-1	MOANALUA WELLS (331-223-T	60	79	68	69	72	74	71	73
380-40536-2	AIEA WELLS PUMPS 1&2 (260) (331-203-TP400)	66	75	74	74	77	79	77	77
380-40536-3	HALAWA WELLS UNITS 1 & 2 (331-206-TP065)	71	81	76	80	82	83	79	78
380-40536-4	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	67	80	73	76	78	79	77	80
380-40536-4 LMS	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	69	78	75	74	79	79	75	76
380-40536-4 LMSD	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	75	78	77	78	83	80	76	77

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFBA (50-200)	PFPeA (50-200)	C3PFBS (50-200)	C3PFHS (50-200)	C8PFOS (50-200)	42FTS (50-200)	62FTS (50-200)	82FTS (50-200)
380-40536-1	MOANALUA WELLS (331-223-T	67	68	88	87	89	106	97	143
380-40536-2	AIEA WELLS PUMPS 1&2 (260) (331-203-TP400)	71	74	86	84	81	100	89	88
380-40536-3	HALAWA WELLS UNITS 1 & 2 (331-206-TP065)	76	75	85	87	87	98	95	92
380-40536-4	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	71	72	90	88	85	99	90	89
380-40536-4 LMS	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	75	76	85	85	87	96	90	87
380-40536-4 LMSD	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	76	73	87	86	84	93	89	87

### 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

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		HFPODA (50-200)	C6PFDA (50-200)	13C5PHA (50-200)	C4PFHA (50-200)	C8PFOA (50-200)	C9PFNA (50-200)	13C7PUA (50-200)	PFDoA (50-200)
380-40536-9	FB:MOANALUA WELLS (331-22	88	81	91	86	89	88	78	76
380-40536-10	FB: AIEA WELLS PUMPS 1&2 (260) (331-203-TP400)	82	82	84	84	89	84	80	82

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# Isotope Dilution Summary

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

Job ID: 380-40536-1

## 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)	PFDaA (50-200)
380-40536-11	FB: HALAWA WELLS UNITS 1&2	92	89	101	96	93	94	85	86
380-40536-12	FB:AIEA GULCH WELLS P2 (331-202-TP072)	87	86	101	96	94	95	85	86
380-40727-B-1-A LMS	Matrix Spike	90	88	98	93	95	92	86	91
380-40727-B-2-A DU	Duplicate	88	86	97	88	92	90	82	84
LCS 380-34852/23-A	Lab Control Sample	85	85	84	85	91	90	84	82
LCS 380-35219/23-A	Lab Control Sample	99	91	98	99	96	95	94	89
LCSD 380-34852/24-A	Lab Control Sample Dup	85	87	90	89	89	88	82	87
LCSD 380-35219/24-A	Lab Control Sample Dup	98	94	100	100	96	99	95	93
MBL 380-34852/21-A	Method Blank	84	93	86	85	90	87	82	83
MBL 380-35219/21-A	Method Blank	87	90	100	95	94	93	88	89
MRL 380-34852/22-A	Lab Control Sample	85	82	92	87	89	87	80	81
MRL 380-35219/22-A	Lab Control Sample	87	85	96	98	95	91	85	82

### 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)
380-40536-9	FB:MOANALUA WELLS (331-202-TP065)	86	91	87	89	89	99	92	87
380-40536-10	FB: AIEA WELLS PUMPS 1&2 (260) (331-203-TP400)	89	91	87	87	84	98	94	88
380-40536-11	FB: HALAWA WELLS UNITS 1&2 (331-206-TP065)	99	99	96	96	95	110	96	96
380-40536-12	FB:AIEA GULCH WELLS P2 (331-202-TP072)	95	101	100	96	95	105	97	89
380-40727-B-1-A LMS	Matrix Spike	96	102	95	92	96	106	93	86
380-40727-B-2-A DU	Duplicate	93	118	97	95	94	133	101	97
LCS 380-34852/23-A	Lab Control Sample	87	85	86	88	90	97	93	92
LCS 380-35219/23-A	Lab Control Sample	96	98	96	98	96	111	102	95
LCSD 380-34852/24-A	Lab Control Sample Dup	88	88	83	85	85	93	88	88
LCSD 380-35219/24-A	Lab Control Sample Dup	97	100	93	96	98	102	96	92
MBL 380-34852/21-A	Method Blank	86	85	88	87	86	108	100	154
MBL 380-35219/21-A	Method Blank	96	106	97	94	93	111	98	106
MRL 380-34852/22-A	Lab Control Sample	86	92	93	87	86	106	96	91
MRL 380-35219/22-A	Lab Control Sample	91	97	92	95	91	105	93	84

#### Surrogate Legend

- HFPODA = 13C3 HFPO-DA
- C6PFDA = 13C6 PFDA
- 13C5PHA = 13C5 PFHxA
- C4PFHA = 13C4 PFHpA
- C8PFOA = 13C8 PFOA
- C9PFNA = 13C9 PFNA
- 13C7PUA = 13C7 PFUnA
- PFDaA = 13C2 PFDaA
- 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: 380-40536-1

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

**Lab Sample ID: MB 380-33997/1-A**  
**Matrix: Water**  
**Analysis Batch: 34159**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 33997**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		0.099	ug/L		03/17/23 07:06	03/20/23 12:55	1
2,4'-DDE	ND		0.099	ug/L		03/17/23 07:06	03/20/23 12:55	1
2,4'-DDT	ND		0.099	ug/L		03/17/23 07:06	03/20/23 12:55	1
2,4-Dinitrotoluene	ND		0.099	ug/L		03/17/23 07:06	03/20/23 12:55	1
2,6-Dinitrotoluene	ND		0.099	ug/L		03/17/23 07:06	03/20/23 12:55	1
4,4'-DDD	ND		0.099	ug/L		03/17/23 07:06	03/20/23 12:55	1
4,4'-DDE	ND		0.099	ug/L		03/17/23 07:06	03/20/23 12:55	1
4,4'-DDT	ND		0.099	ug/L		03/17/23 07:06	03/20/23 12:55	1
Acenaphthene	ND		0.099	ug/L		03/17/23 07:06	03/20/23 12:55	1
Acenaphthylene	ND		0.099	ug/L		03/17/23 07:06	03/20/23 12:55	1
Acetochlor	ND		0.099	ug/L		03/17/23 07:06	03/20/23 12:55	1
Alachlor	ND		0.050	ug/L		03/17/23 07:06	03/20/23 12:55	1
alpha-BHC	ND		0.099	ug/L		03/17/23 07:06	03/20/23 12:55	1
alpha-Chlordane	ND		0.050	ug/L		03/17/23 07:06	03/20/23 12:55	1
Anthracene	ND		0.020	ug/L		03/17/23 07:06	03/20/23 12:55	1
Atrazine	ND		0.050	ug/L		03/17/23 07:06	03/20/23 12:55	1
Benz(a)anthracene	ND		0.050	ug/L		03/17/23 07:06	03/20/23 12:55	1
Benzo[a]pyrene	ND		0.020	ug/L		03/17/23 07:06	03/20/23 12:55	1
Benzo[b]fluoranthene	ND		0.020	ug/L		03/17/23 07:06	03/20/23 12:55	1
Benzo[g,h,i]perylene	ND		0.050	ug/L		03/17/23 07:06	03/20/23 12:55	1
Benzo[k]fluoranthene	ND		0.020	ug/L		03/17/23 07:06	03/20/23 12:55	1
beta-BHC	ND		0.099	ug/L		03/17/23 07:06	03/20/23 12:55	1
Bromacil	ND		0.099	ug/L		03/17/23 07:06	03/20/23 12:55	1
Butachlor	ND		0.050	ug/L		03/17/23 07:06	03/20/23 12:55	1
Butylbenzylphthalate	ND		0.50	ug/L		03/17/23 07:06	03/20/23 12:55	1
Caffeine	ND		0.050	ug/L		03/17/23 07:06	03/20/23 12:55	1
Chlorobenzilate	ND		0.099	ug/L		03/17/23 07:06	03/20/23 12:55	1
Chloroneb	ND		0.099	ug/L		03/17/23 07:06	03/20/23 12:55	1
Chlorothalonil (Draconil, Bravo)	ND		0.099	ug/L		03/17/23 07:06	03/20/23 12:55	1
Chlorpyrifos	ND		0.050	ug/L		03/17/23 07:06	03/20/23 12:55	1
Chrysene	ND		0.020	ug/L		03/17/23 07:06	03/20/23 12:55	1
delta-BHC	ND		0.099	ug/L		03/17/23 07:06	03/20/23 12:55	1
Di(2-ethylhexyl)adipate	ND		0.60	ug/L		03/17/23 07:06	03/20/23 12:55	1
Bis(2-ethylhexyl) phthalate	ND		0.60	ug/L		03/17/23 07:06	03/20/23 12:55	1
Diazinon (Qualitative)	ND		0.099	ug/L		03/17/23 07:06	03/20/23 12:55	1
Dibenz(a,h)anthracene	ND		0.050	ug/L		03/17/23 07:06	03/20/23 12:55	1
Diclorvos (DDVP)	ND		0.050	ug/L		03/17/23 07:06	03/20/23 12:55	1
Dieldrin	ND		0.20	ug/L		03/17/23 07:06	03/20/23 12:55	1
Diethylphthalate	ND		0.50	ug/L		03/17/23 07:06	03/20/23 12:55	1
Dimethoate	ND		0.099	ug/L		03/17/23 07:06	03/20/23 12:55	1
Dimethylphthalate	ND		0.50	ug/L		03/17/23 07:06	03/20/23 12:55	1
Di-n-butyl phthalate	ND		0.99	ug/L		03/17/23 07:06	03/20/23 12:55	1
Di-n-octyl phthalate	ND		0.099	ug/L		03/17/23 07:06	03/20/23 12:55	1
Endosulfan I (Alpha)	ND		0.099	ug/L		03/17/23 07:06	03/20/23 12:55	1
Endosulfan II (Beta)	ND		0.099	ug/L		03/17/23 07:06	03/20/23 12:55	1
Endosulfan sulfate	ND		0.099	ug/L		03/17/23 07:06	03/20/23 12:55	1
Endrin	ND		0.099	ug/L		03/17/23 07:06	03/20/23 12:55	1
Endrin aldehyde	ND		0.099	ug/L		03/17/23 07:06	03/20/23 12:55	1

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# QC Sample Results

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

Job ID: 380-40536-1

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

**Lab Sample ID: MB 380-33997/1-A**  
**Matrix: Water**  
**Analysis Batch: 34159**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 33997**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
EPTC	ND		0.099	ug/L		03/17/23 07:06	03/20/23 12:55	1
Fluoranthene	ND		0.099	ug/L		03/17/23 07:06	03/20/23 12:55	1
Fluorene	ND		0.050	ug/L		03/17/23 07:06	03/20/23 12:55	1
gamma-Chlordane	ND		0.050	ug/L		03/17/23 07:06	03/20/23 12:55	1
Heptachlor	ND		0.040	ug/L		03/17/23 07:06	03/20/23 12:55	1
Heptachlor epoxide (isomer B)	ND		0.050	ug/L		03/17/23 07:06	03/20/23 12:55	1
Hexachlorobenzene	ND		0.050	ug/L		03/17/23 07:06	03/20/23 12:55	1
Hexachlorocyclopentadiene	ND		0.050	ug/L		03/17/23 07:06	03/20/23 12:55	1
Indeno[1,2,3-cd]pyrene	ND		0.050	ug/L		03/17/23 07:06	03/20/23 12:55	1
Isophorone	ND		0.50	ug/L		03/17/23 07:06	03/20/23 12:55	1
Lindane	ND		0.040	ug/L		03/17/23 07:06	03/20/23 12:55	1
Malathion	ND		0.099	ug/L		03/17/23 07:06	03/20/23 12:55	1
Methoxychlor	ND		0.099	ug/L		03/17/23 07:06	03/20/23 12:55	1
Metolachlor	ND		0.050	ug/L		03/17/23 07:06	03/20/23 12:55	1
Metribuzin	ND		0.050	ug/L		03/17/23 07:06	03/20/23 12:55	1
Molinate	ND		0.099	ug/L		03/17/23 07:06	03/20/23 12:55	1
Naphthalene	ND		0.30	ug/L		03/17/23 07:06	03/20/23 12:55	1
Parathion	ND		0.099	ug/L		03/17/23 07:06	03/20/23 12:55	1
Pendimethalin (Penoxaline)	ND		0.099	ug/L		03/17/23 07:06	03/20/23 12:55	1
Total Permethrin (mixed isomers)	ND		0.20	ug/L		03/17/23 07:06	03/20/23 12:55	1
Phenanthrene	ND		0.040	ug/L		03/17/23 07:06	03/20/23 12:55	1
Propachlor	ND		0.050	ug/L		03/17/23 07:06	03/20/23 12:55	1
Pyrene	ND		0.050	ug/L		03/17/23 07:06	03/20/23 12:55	1
Simazine	ND		0.050	ug/L		03/17/23 07:06	03/20/23 12:55	1
Terbacil	ND		0.099	ug/L		03/17/23 07:06	03/20/23 12:55	1
Terbutylazine	ND		0.099	ug/L		03/17/23 07:06	03/20/23 12:55	1
Thiobencarb	ND		0.20	ug/L		03/17/23 07:06	03/20/23 12:55	1
trans-Nonachlor	ND		0.050	ug/L		03/17/23 07:06	03/20/23 12:55	1
Trifluralin	ND		0.099	ug/L		03/17/23 07:06	03/20/23 12:55	1

<i>Tentatively Identified Compound</i>	MB Est. Result	MB Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
<i>Unknown</i>	1.63	T J	ug/L		2.45	N/A	03/17/23 07:06	03/20/23 12:55	1
<i>Unknown</i>	0.845	T J	ug/L		5.91	N/A	03/17/23 07:06	03/20/23 12:55	1
<i>Unknown</i>	0.532	T J	ug/L		6.61	N/A	03/17/23 07:06	03/20/23 12:55	1
<i>Unknown</i>	0.711	T J	ug/L		7.14	N/A	03/17/23 07:06	03/20/23 12:55	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	96		70 - 130	03/17/23 07:06	03/20/23 12:55	1
Triphenylphosphate	115		70 - 130	03/17/23 07:06	03/20/23 12:55	1
Perylene-d12	81		70 - 130	03/17/23 07:06	03/20/23 12:55	1

**Lab Sample ID: LCS 380-33997/3-A**  
**Matrix: Water**  
**Analysis Batch: 34159**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 33997**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4'-DDD	1.99	1.72		ug/L		86	70 - 130
2,4'-DDE	1.99	1.81		ug/L		91	70 - 130

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-40536-1

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

**Lab Sample ID: LCS 380-33997/3-A**  
**Matrix: Water**  
**Analysis Batch: 34159**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 33997**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4'-DDT	1.99	1.96		ug/L		98	70 - 130
2,4-Dinitrotoluene	1.99	1.64		ug/L		82	70 - 130
2,6-Dinitrotoluene	1.99	1.64		ug/L		82	70 - 130
4,4'-DDD	1.99	1.93		ug/L		97	70 - 130
4,4'-DDE	1.99	2.09		ug/L		105	70 - 130
4,4'-DDT	1.99	1.94		ug/L		98	70 - 130
Acenaphthene	1.99	1.78		ug/L		90	70 - 130
Acenaphthylene	1.99	1.94		ug/L		97	70 - 130
Acetochlor	1.99	2.00		ug/L		100	70 - 130
Alachlor	1.99	1.93		ug/L		97	70 - 130
alpha-BHC	1.99	1.94		ug/L		97	70 - 130
alpha-Chlordane	1.99	2.43		ug/L		122	70 - 130
Anthracene	1.99	1.87		ug/L		94	70 - 130
Atrazine	1.99	2.13		ug/L		107	70 - 130
Benz(a)anthracene	1.99	1.96		ug/L		99	70 - 130
Benzo[a]pyrene	1.99	2.38		ug/L		120	70 - 130
Benzo[b]fluoranthene	1.99	2.07		ug/L		104	70 - 130
Benzo[g,h,i]perylene	1.99	2.09		ug/L		105	70 - 130
Benzo[k]fluoranthene	1.99	1.96		ug/L		99	70 - 130
beta-BHC	1.99	1.93		ug/L		97	70 - 130
Bromacil	1.99	2.17		ug/L		109	70 - 130
Butachlor	1.99	2.05		ug/L		103	70 - 130
Butylbenzylphthalate	1.99	2.30		ug/L		116	70 - 130
Caffeine	1.99	1.49		ug/L		75	45 - 137
Chlorobenzilate	1.99	1.80		ug/L		91	70 - 130
Chloroneb	1.99	2.03		ug/L		102	70 - 130
Chlorothalonil (Draconil, Bravo)	1.99	1.93		ug/L		97	70 - 130
Chlorpyrifos	1.99	2.16		ug/L		108	70 - 130
Chrysene	1.99	2.10		ug/L		105	70 - 130
delta-BHC	1.99	1.94		ug/L		97	70 - 130
Di(2-ethylhexyl)adipate	1.99	2.44		ug/L		123	70 - 130
Bis(2-ethylhexyl) phthalate	1.99	2.25		ug/L		113	70 - 130
Diazinon (Qualitative)	1.99	1.74		ug/L		88	15 - 132
Dibenz(a,h)anthracene	1.99	2.05		ug/L		103	70 - 130
Diclorvos (DDVP)	1.99	1.96		ug/L		99	70 - 130
Dieldrin	1.99	1.80		ug/L		91	70 - 130
Diethylphthalate	1.99	2.03		ug/L		102	70 - 130
Dimethoate	1.99	0.972		ug/L		49	35 - 100
Dimethylphthalate	1.99	1.95		ug/L		98	70 - 130
Di-n-butyl phthalate	3.98	3.98		ug/L		100	70 - 130
Di-n-octyl phthalate	1.99	2.24		ug/L		113	70 - 130
Endosulfan I (Alpha)	1.99	2.02		ug/L		102	70 - 130
Endosulfan II (Beta)	1.99	2.15		ug/L		108	70 - 130
Endosulfan sulfate	1.99	1.88		ug/L		95	70 - 130
Endrin	1.99	2.08		ug/L		104	70 - 130
Endrin aldehyde	1.99	2.13		ug/L		107	70 - 130
EPTC	1.99	2.08		ug/L		104	70 - 130
Fluoranthene	1.99	2.12		ug/L		107	70 - 130
Fluorene	1.99	1.94		ug/L		97	70 - 130

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-40536-1

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

**Lab Sample ID: LCS 380-33997/3-A**  
**Matrix: Water**  
**Analysis Batch: 34159**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 33997**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
gamma-Chlordane	1.99	2.44		ug/L		123	70 - 130
Heptachlor	1.99	1.98		ug/L		100	70 - 130
Heptachlor epoxide (isomer B)	1.99	2.47		ug/L		124	70 - 130
Hexachlorobenzene	1.99	1.92		ug/L		96	70 - 130
Hexachlorocyclopentadiene	1.99	1.98		ug/L		100	70 - 130
Indeno[1,2,3-cd]pyrene	1.99	2.08		ug/L		105	70 - 130
Isophorone	1.99	1.97		ug/L		99	70 - 130
Lindane	1.99	2.00		ug/L		101	70 - 130
Malathion	1.99	2.07		ug/L		104	70 - 130
Methoxychlor	1.99	2.23		ug/L		112	70 - 130
Metolachlor	1.99	2.16		ug/L		109	70 - 130
Metribuzin	1.99	1.85		ug/L		93	70 - 130
Molinate	1.99	1.94		ug/L		98	70 - 130
Naphthalene	1.99	1.69		ug/L		85	70 - 130
Parathion	1.99	1.97		ug/L		99	70 - 130
Pendimethalin (Penoxaline)	1.99	1.88		ug/L		95	70 - 130
Phenanthrene	1.99	1.79		ug/L		90	70 - 130
Propachlor	1.99	1.96		ug/L		99	70 - 130
Pyrene	1.99	2.09		ug/L		105	70 - 130
Simazine	1.99	2.05		ug/L		103	70 - 130
Terbacil	1.99	2.33		ug/L		117	70 - 130
Terbutylazine	1.99	2.02		ug/L		102	70 - 130
Thiobencarb	1.99	1.87		ug/L		94	70 - 130
trans-Nonachlor	1.99	2.15		ug/L		108	70 - 130
Trifluralin	1.99	1.74		ug/L		87	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Nitro-m-xylene	97		70 - 130
Triphenylphosphate	118		70 - 130
Perylene-d12	96		70 - 130

**Lab Sample ID: LCSD 380-33997/4-A**  
**Matrix: Water**  
**Analysis Batch: 34159**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 33997**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2,4'-DDD	1.98	1.78		ug/L		90	70 - 130	3	20
2,4'-DDE	1.98	1.87		ug/L		94	70 - 130	3	20
2,4'-DDT	1.98	2.02		ug/L		102	70 - 130	3	20
2,4-Dinitrotoluene	1.98	1.73		ug/L		87	70 - 130	6	20
2,6-Dinitrotoluene	1.98	1.75		ug/L		88	70 - 130	6	20
4,4'-DDD	1.98	1.98		ug/L		100	70 - 130	2	20
4,4'-DDE	1.98	2.19		ug/L		110	70 - 130	5	20
4,4'-DDT	1.98	2.02		ug/L		102	70 - 130	4	20
Acenaphthene	1.98	1.85		ug/L		93	70 - 130	3	20
Acenaphthylene	1.98	2.04		ug/L		103	70 - 130	5	20
Acetochlor	1.98	2.13		ug/L		107	70 - 130	6	20
Alachlor	1.98	2.02		ug/L		102	70 - 130	4	20

Eurofins Eaton Analytical Pomona



# QC Sample Results

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

Job ID: 380-40536-1

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

**Lab Sample ID: LCSD 380-33997/4-A**  
**Matrix: Water**  
**Analysis Batch: 34159**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 33997**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
alpha-BHC	1.98	2.00		ug/L		101	70 - 130	3	20
alpha-Chlordane	1.98	2.53		ug/L		127	70 - 130	4	20
Anthracene	1.98	2.01		ug/L		101	70 - 130	7	20
Atrazine	1.98	2.23		ug/L		113	70 - 130	5	20
Benz(a)anthracene	1.98	2.04		ug/L		103	70 - 130	4	20
Benzo[a]pyrene	1.98	2.38		ug/L		120	70 - 130	0	20
Benzo[b]fluoranthene	1.98	2.08		ug/L		105	70 - 130	0	20
Benzo[g,h,i]perylene	1.98	2.21		ug/L		112	70 - 130	6	20
Benzo[k]fluoranthene	1.98	1.94		ug/L		98	70 - 130	1	20
beta-BHC	1.98	2.07		ug/L		104	70 - 130	7	20
Bromacil	1.98	2.31		ug/L		117	70 - 130	6	20
Butachlor	1.98	2.13		ug/L		107	70 - 130	4	20
Butylbenzylphthalate	1.98	2.42		ug/L		122	70 - 130	5	20
Caffeine	1.98	1.58		ug/L		80	45 - 137	6	20
Chlorobenzilate	1.98	2.13		ug/L		107	70 - 130	16	20
Chloroneb	1.98	2.11		ug/L		106	70 - 130	4	20
Chlorothalonil (Draconil, Bravo)	1.98	2.19		ug/L		110	70 - 130	12	20
Chlorpyrifos	1.98	2.23		ug/L		113	70 - 130	3	20
Chrysene	1.98	2.13		ug/L		107	70 - 130	1	20
delta-BHC	1.98	2.02		ug/L		102	70 - 130	4	20
Di(2-ethylhexyl)adipate	1.98	2.56		ug/L		129	70 - 130	5	20
Bis(2-ethylhexyl) phthalate	1.98	2.30		ug/L		116	70 - 130	2	20
Diazinon (Qualitative)	1.98	1.82		ug/L		92	15 - 132	4	20
Dibenz(a,h)anthracene	1.98	2.15		ug/L		109	70 - 130	5	20
Diclorvos (DDVP)	1.98	2.07		ug/L		104	70 - 130	5	20
Dieldrin	1.98	1.89		ug/L		95	70 - 130	4	20
Diethylphthalate	1.98	2.09		ug/L		106	70 - 130	3	20
Dimethoate	1.98	1.11		ug/L		56	35 - 100	13	20
Dimethylphthalate	1.98	2.01		ug/L		101	70 - 130	3	20
Di-n-butyl phthalate	3.96	4.21		ug/L		106	70 - 130	6	20
Di-n-octyl phthalate	1.98	2.34		ug/L		118	70 - 130	5	20
Endosulfan I (Alpha)	1.98	2.09		ug/L		105	70 - 130	3	20
Endosulfan II (Beta)	1.98	2.24		ug/L		113	70 - 130	4	20
Endosulfan sulfate	1.98	1.99		ug/L		101	70 - 130	6	20
Endrin	1.98	2.16		ug/L		109	70 - 130	4	20
Endrin aldehyde	1.98	2.10		ug/L		106	70 - 130	1	20
EPTC	1.98	2.10		ug/L		106	70 - 130	1	20
Fluoranthene	1.98	2.22		ug/L		112	70 - 130	4	20
Fluorene	1.98	2.04		ug/L		103	70 - 130	5	20
gamma-Chlordane	1.98	2.57		ug/L		130	70 - 130	5	20
Heptachlor	1.98	2.05		ug/L		103	70 - 130	3	20
Heptachlor epoxide (isomer B)	1.98	2.64	*+	ug/L		133	70 - 130	7	20
Hexachlorobenzene	1.98	1.98		ug/L		100	70 - 130	3	20
Hexachlorocyclopentadiene	1.98	2.02		ug/L		102	70 - 130	2	20
Indeno[1,2,3-cd]pyrene	1.98	2.16		ug/L		109	70 - 130	4	20
Isophorone	1.98	2.03		ug/L		103	70 - 130	3	20
Lindane	1.98	2.07		ug/L		104	70 - 130	3	20
Malathion	1.98	2.22		ug/L		112	70 - 130	7	20
Methoxychlor	1.98	2.23		ug/L		113	70 - 130	0	20

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-40536-1

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

**Lab Sample ID: LCSD 380-33997/4-A**  
**Matrix: Water**  
**Analysis Batch: 34159**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 33997**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Metolachlor	1.98	2.25		ug/L		114	70 - 130	4	20
Metribuzin	1.98	1.66		ug/L		84	70 - 130	11	20
Molinate	1.98	2.01		ug/L		102	70 - 130	4	20
Naphthalene	1.98	1.75		ug/L		88	70 - 130	4	20
Parathion	1.98	2.12		ug/L		107	70 - 130	8	20
Pendimethalin (Penoxaline)	1.98	1.98		ug/L		100	70 - 130	5	20
Phenanthrene	1.98	1.87		ug/L		94	70 - 130	4	20
Propachlor	1.98	2.04		ug/L		103	70 - 130	4	20
Pyrene	1.98	2.18		ug/L		110	70 - 130	4	20
Simazine	1.98	2.09		ug/L		105	70 - 130	2	20
Terbacil	1.98	2.41		ug/L		121	70 - 130	3	20
Terbutylazine	1.98	2.10		ug/L		106	70 - 130	4	20
Thiobencarb	1.98	1.97		ug/L		99	70 - 130	5	20
trans-Nonachlor	1.98	2.20		ug/L		111	70 - 130	2	20
Trifluralin	1.98	1.85		ug/L		93	70 - 130	6	20

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
2-Nitro-m-xylene	97		70 - 130
Triphenylphosphate	122		70 - 130
Perylene-d12	95		70 - 130

**Lab Sample ID: MRL 380-33997/2-A**  
**Matrix: Water**  
**Analysis Batch: 34159**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 33997**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
2,4'-DDD	0.0992	0.132		ug/L		133	50 - 150
2,4'-DDE	0.0992	0.108		ug/L		109	50 - 150
2,4'-DDT	0.0992	0.117		ug/L		118	50 - 150
2,4-Dinitrotoluene	0.0992	0.119		ug/L		120	50 - 150
2,6-Dinitrotoluene	0.0992	0.137		ug/L		138	50 - 150
4,4'-DDD	0.0992	0.138		ug/L		139	50 - 150
4,4'-DDE	0.0992	0.0946	J	ug/L		95	50 - 150
4,4'-DDT	0.0992	0.149		ug/L		150	50 - 150
Acenaphthene	0.0992	0.102		ug/L		103	50 - 150
Acenaphthylene	0.0992	0.0959	J	ug/L		97	50 - 150
Acetochlor	0.0496	0.0687	J	ug/L		139	50 - 150
Alachlor	0.0496	0.0725		ug/L		146	50 - 150
alpha-BHC	0.0992	0.0954	J	ug/L		96	50 - 150
alpha-Chlordane	0.0248	ND		ug/L		115	50 - 150
Anthracene	0.0198	ND		ug/L		85	50 - 150
Atrazine	0.0496	0.0546		ug/L		110	50 - 150
Benz(a)anthracene	0.0496	0.0441	J	ug/L		89	50 - 150
Benzo[a]pyrene	0.0198	0.0200		ug/L		101	50 - 150
Benzo[b]fluoranthene	0.0198	0.0318	^3+	ug/L		160	50 - 150
Benzo[g,h,i]perylene	0.0496	0.0625		ug/L		126	50 - 150
Benzo[k]fluoranthene	0.0198	0.0234		ug/L		118	50 - 150
beta-BHC	0.0992	0.112		ug/L		113	50 - 150

# QC Sample Results

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

Job ID: 380-40536-1

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

**Lab Sample ID: MRL 380-33997/2-A**  
**Matrix: Water**  
**Analysis Batch: 34159**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 33997**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Bromacil	0.0992	0.118		ug/L		119	50 - 150
Butachlor	0.0496	0.0845	^3+	ug/L		170	50 - 150
Butylbenzylphthalate	0.149	0.181	J	ug/L		122	50 - 150
Caffeine	0.0496	0.0362	J	ug/L		73	50 - 150
Chlorobenzilate	0.0992	0.117		ug/L		118	50 - 150
Chloroneb	0.0992	0.139		ug/L		140	50 - 150
Chlorothalonil (Draconil, Bravo)	0.0992	0.0967	J	ug/L		98	50 - 150
Chlorpyrifos	0.0496	0.0530		ug/L		107	50 - 150
Chrysene	0.0198	0.0238		ug/L		120	50 - 150
delta-BHC	0.0992	0.114		ug/L		115	50 - 150
Di(2-ethylhexyl)adipate	0.297	0.385	J	ug/L		129	50 - 150
Bis(2-ethylhexyl) phthalate	0.595	0.645		ug/L		108	50 - 150
Diazinon (Qualitative)	0.0992	0.108		ug/L		109	15 - 132
Dibenz(a,h)anthracene	0.0496	0.0761	^3+	ug/L		154	50 - 150
Diclorvos (DDVP)	0.0496	0.0552		ug/L		111	50 - 150
Dieldrin	0.0992	0.104	J	ug/L		105	50 - 150
Diethylphthalate	0.149	0.169	J	ug/L		114	50 - 150
Dimethoate	0.0992	0.0780	J	ug/L		79	35 - 100
Dimethylphthalate	0.297	0.309	J	ug/L		104	50 - 150
Di-n-butyl phthalate	0.297	0.359	J	ug/L		121	49 - 243
Di-n-octyl phthalate	0.0992	0.149		ug/L		150	50 - 150
Endosulfan I (Alpha)	0.0992	0.105		ug/L		106	50 - 150
Endosulfan II (Beta)	0.0992	0.126		ug/L		127	50 - 150
Endosulfan sulfate	0.0992	0.111		ug/L		112	50 - 150
Endrin	0.0992	0.122		ug/L		123	50 - 150
Endrin aldehyde	0.0992	0.158	^3+	ug/L		159	50 - 150
EPTC	0.0992	0.0974	J	ug/L		98	50 - 150
Fluoranthene	0.0496	0.0539	J	ug/L		109	50 - 150
Fluorene	0.0496	0.0520		ug/L		105	50 - 150
gamma-Chlordane	0.0248	0.0306	J	ug/L		123	50 - 150
Heptachlor	0.0397	0.0513		ug/L		129	50 - 150
Heptachlor epoxide (isomer B)	0.0496	0.0532		ug/L		107	50 - 150
Hexachlorobenzene	0.0496	0.0446	J	ug/L		90	50 - 150
Hexachlorocyclopentadiene	0.0496	0.0507		ug/L		102	50 - 150
Indeno[1,2,3-cd]pyrene	0.0496	0.0706		ug/L		142	50 - 150
Isophorone	0.0992	0.109	J	ug/L		110	50 - 150
Lindane	0.0397	0.0492		ug/L		124	50 - 150
Malathion	0.0992	0.123		ug/L		124	50 - 150
Methoxychlor	0.0992	0.144		ug/L		145	50 - 150
Metolachlor	0.0496	0.0610		ug/L		123	50 - 150
Metribuzin	0.0496	0.0676		ug/L		136	50 - 150
Molinate	0.0992	0.0968	J	ug/L		98	50 - 150
Naphthalene	0.0992	0.0994	J	ug/L		100	50 - 150
Parathion	0.0992	0.133		ug/L		134	50 - 150
Pendimethalin (Penoxaline)	0.0992	0.126		ug/L		127	50 - 150
Phenanthrene	0.0198	0.0205	J	ug/L		103	50 - 150
Propachlor	0.0496	0.0504		ug/L		102	50 - 150
Pyrene	0.0496	0.0523		ug/L		105	50 - 150
Simazine	0.0496	0.0541		ug/L		109	50 - 150

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# QC Sample Results

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

Job ID: 380-40536-1

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

**Lab Sample ID: MRL 380-33997/2-A**  
**Matrix: Water**  
**Analysis Batch: 34159**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 33997**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Terbacil	0.0992	0.142		ug/L		143	50 - 150
Terbutylazine	0.0992	0.110		ug/L		111	50 - 150
Thiobencarb	0.0992	0.113	J	ug/L		114	50 - 150
trans-Nonachlor	0.0248	0.0292	J	ug/L		118	50 - 150
Trifluralin	0.0992	0.113		ug/L		114	50 - 150

Surrogate	MRL %Recovery	MRL Qualifier	Limits
2-Nitro-m-xylene	97		70 - 130
Triphenylphosphate	115		70 - 130
Perylene-d12	89		70 - 130

**Lab Sample ID: 380-40369-AP-1-A MS**  
**Matrix: Water**  
**Analysis Batch: 34159**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 33997**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
2,4'-DDD	ND		1.96	1.75		ug/L		89	70 - 130
2,4'-DDE	ND		1.96	1.85		ug/L		95	70 - 130
2,4'-DDT	ND		1.96	1.97		ug/L		101	70 - 130
2,4-Dinitrotoluene	ND		1.96	1.75		ug/L		89	70 - 130
2,6-Dinitrotoluene	ND		1.96	1.67		ug/L		85	70 - 130
4,4'-DDD	ND		1.96	1.94		ug/L		99	70 - 130
4,4'-DDE	ND		1.96	2.19		ug/L		112	70 - 130
4,4'-DDT	ND		1.96	2.00		ug/L		102	70 - 130
Acenaphthene	ND		1.96	1.79		ug/L		91	70 - 130
Acenaphthylene	ND		1.96	2.04		ug/L		104	70 - 130
Acetochlor	ND		1.96	2.05		ug/L		104	70 - 130
Alachlor	ND		1.96	1.99		ug/L		101	70 - 130
alpha-BHC	ND		1.96	2.00		ug/L		102	70 - 130
alpha-Chlordane	ND		1.96	2.56		ug/L		130	70 - 130
Anthracene	ND		1.96	1.59		ug/L		81	70 - 130
Atrazine	ND		1.96	2.07		ug/L		106	70 - 130
Benz(a)anthracene	ND		1.96	1.94		ug/L		99	70 - 130
Benzo[a]pyrene	ND		1.96	2.26		ug/L		115	70 - 130
Benzo[b]fluoranthene	ND	^3+	1.96	1.97		ug/L		101	70 - 130
Benzo[g,h,i]perylene	ND		1.96	2.11		ug/L		108	70 - 130
Benzo[k]fluoranthene	ND		1.96	1.81		ug/L		93	70 - 130
beta-BHC	ND		1.96	2.10		ug/L		107	70 - 130
Bromacil	ND		1.96	2.26		ug/L		115	70 - 130
Butachlor	ND	^3+	1.96	2.09		ug/L		107	70 - 130
Butylbenzylphthalate	ND		1.96	2.45		ug/L		125	70 - 130
Caffeine	ND		1.96	1.66		ug/L		85	46 - 144
Chlorobenzilate	ND	F1	1.96	2.56	F1	ug/L		131	70 - 130
Chloroneb	ND		1.96	2.09		ug/L		107	70 - 130
Chlorothalonil (Draconil, Bravo)	ND		1.96	2.09		ug/L		107	70 - 130
Chlorpyrifos	ND		1.96	2.17		ug/L		111	70 - 130
Chrysene	ND		1.96	2.07		ug/L		106	70 - 130
delta-BHC	ND		1.96	2.02		ug/L		103	70 - 130

# QC Sample Results

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

Job ID: 380-40536-1

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

**Lab Sample ID: 380-40369-AP-1-A MS**  
**Matrix: Water**  
**Analysis Batch: 34159**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 33997**

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier	Added	Result	Qualifier				
Di(2-ethylhexyl)adipate	ND		1.96	2.56		ug/L		125	70 - 130
Bis(2-ethylhexyl) phthalate	ND		1.96	2.30		ug/L		117	70 - 130
Diazinon (Qualitative)	ND		1.96	1.90		ug/L		97	15 - 132
Dibenz(a,h)anthracene	ND	^3+	1.96	2.14		ug/L		109	70 - 130
Diclorvos (DDVP)	ND		1.96	2.05		ug/L		105	70 - 130
Dieldrin	ND		1.96	1.82		ug/L		93	70 - 130
Diethylphthalate	ND		1.96	2.12		ug/L		108	70 - 130
Dimethoate	ND		1.96	1.47		ug/L		75	34 - 111
Dimethylphthalate	ND		1.96	2.00		ug/L		102	70 - 130
Di-n-butyl phthalate	ND		3.92	4.34		ug/L		111	70 - 130
Di-n-octyl phthalate	ND		1.96	2.32		ug/L		118	70 - 130
Endosulfan I (Alpha)	ND		1.96	2.09		ug/L		107	70 - 130
Endosulfan II (Beta)	ND		1.96	2.13		ug/L		109	70 - 130
Endosulfan sulfate	ND		1.96	1.93		ug/L		98	70 - 130
Endrin	ND		1.96	1.75		ug/L		89	70 - 130
Endrin aldehyde	ND	^3+	1.96	1.80		ug/L		92	70 - 130
EPTC	ND		1.96	2.12		ug/L		108	70 - 130
Fluoranthene	ND		1.96	2.21		ug/L		113	70 - 130
Fluorene	ND		1.96	1.95		ug/L		100	70 - 130
gamma-Chlordane	ND		1.96	2.53		ug/L		129	70 - 130
Heptachlor	ND		1.96	1.99		ug/L		102	70 - 130
Heptachlor epoxide (isomer B)	ND	*+ F1	1.96	2.63	F1	ug/L		134	70 - 130
Hexachlorobenzene	ND		1.96	1.97		ug/L		101	70 - 130
Hexachlorocyclopentadiene	ND		1.96	1.90		ug/L		97	70 - 130
Indeno[1,2,3-cd]pyrene	ND		1.96	2.16		ug/L		110	70 - 130
Isophorone	ND		1.96	2.04		ug/L		104	70 - 130
Lindane	ND		1.96	2.04		ug/L		104	70 - 130
Malathion	ND		1.96	2.30		ug/L		117	70 - 130
Methoxychlor	ND		1.96	2.28		ug/L		116	70 - 130
Metolachlor	ND		1.96	2.30		ug/L		117	70 - 130
Metribuzin	ND		1.96	1.73		ug/L		88	70 - 130
Molinate	ND		1.96	2.03		ug/L		104	70 - 130
Naphthalene	ND		1.96	1.71		ug/L		86	70 - 130
Parathion	ND		1.96	2.19		ug/L		112	70 - 130
Pendimethalin (Penoxaline)	ND		1.96	2.03		ug/L		103	70 - 130
Phenanthrene	ND		1.96	1.86		ug/L		94	70 - 130
Propachlor	ND		1.96	2.10		ug/L		107	70 - 130
Pyrene	ND		1.96	2.18		ug/L		111	70 - 130
Simazine	ND		1.96	2.04		ug/L		104	70 - 130
Terbacil	ND		1.96	2.46		ug/L		126	70 - 130
Terbutylazine	ND		1.96	2.00		ug/L		102	70 - 130
Thiobencarb	ND		1.96	2.00		ug/L		102	70 - 130
trans-Nonachlor	ND		1.96	2.10		ug/L		107	70 - 130
Trifluralin	ND		1.96	1.90		ug/L		97	70 - 130

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
2-Nitro-m-xylene	96		70 - 130
Triphenylphosphate	125		70 - 130

# QC Sample Results

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

Job ID: 380-40536-1

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

**Lab Sample ID: 380-40369-AP-1-A MS**  
**Matrix: Water**  
**Analysis Batch: 34159**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 33997**

<i>Surrogate</i>	<i>%Recovery</i>	<i>MS MS Qualifier</i>	<i>Limits</i>
<i>Perylene-d12</i>	98		70 - 130

**Lab Sample ID: 380-40396-AJ-1-A DU**  
**Matrix: Water**  
**Analysis Batch: 34159**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 33997**

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

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-40536-1

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

**Lab Sample ID: 380-40396-AJ-1-A DU**  
**Matrix: Water**  
**Analysis Batch: 34159**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 33997**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Di-n-butyl phthalate	ND		ND		ug/L		NC	20
Di-n-octyl phthalate	ND		ND		ug/L		NC	20
Endosulfan I (Alpha)	ND		ND		ug/L		NC	20
Endosulfan II (Beta)	ND		ND		ug/L		NC	20
Endosulfan sulfate	ND		ND		ug/L		NC	20
Endrin	ND		ND		ug/L		NC	20
Endrin aldehyde	ND	^3+	ND		ug/L		NC	20
EPTC	ND		ND		ug/L		NC	20
Fluoranthene	ND		ND		ug/L		NC	20
Fluorene	ND		ND		ug/L		NC	20
gamma-Chlordane	ND		ND		ug/L		NC	20
Heptachlor	ND		ND		ug/L		NC	20
Heptachlor epoxide (isomer B)	ND	*+	ND	*+	ug/L		NC	20
Hexachlorobenzene	ND		ND		ug/L		NC	20
Hexachlorocyclopentadiene	ND		ND		ug/L		NC	20
Indeno[1,2,3-cd]pyrene	ND		ND		ug/L		NC	20
Isophorone	ND		ND		ug/L		NC	20
Lindane	ND		ND		ug/L		NC	20
Malathion	ND		ND		ug/L		NC	20
Methoxychlor	ND		ND		ug/L		NC	20
Metolachlor	ND		ND		ug/L		NC	20
Metribuzin	ND		ND		ug/L		NC	20
Molinate	ND		ND		ug/L		NC	20
Naphthalene	ND		ND		ug/L		NC	20
Parathion	ND		ND		ug/L		NC	20
Pendimethalin (Penoxaline)	ND		ND		ug/L		NC	20
Total Permethrin (mixed isomers)	ND	^3+	ND		ug/L		NC	20
Phenanthrene	ND		ND		ug/L		NC	20
Propachlor	ND		ND		ug/L		NC	20
Pyrene	ND		ND		ug/L		NC	20
Simazine	ND		ND		ug/L		NC	20
Terbacil	ND		ND		ug/L		NC	20
Terbutylazine	ND		ND		ug/L		NC	20
Thiobencarb	ND		ND		ug/L		NC	20
trans-Nonachlor	ND		ND		ug/L		NC	20
Trifluralin	ND		ND		ug/L		NC	20

Surrogate	DU %Recovery	DU Qualifier	Limits
2-Nitro-m-xylene	97		70 - 130
Triphenylphosphate	121		70 - 130
Perylene-d12	93		70 - 130

# QC Sample Results

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

Job ID: 380-40536-1

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

**Lab Sample ID: MBL 380-34852/21-A**  
**Matrix: Water**  
**Analysis Batch: 35136**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 34852**

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosfluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 14:43	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 14:43	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 14:43	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 14:43	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 14:43	1
Perfluorodecanoic acid (PFDA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 14:43	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 14:43	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 14:43	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 14:43	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 14:43	1
Perfluorononanoic acid (PFNA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 14:43	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 14:43	1
Perfluorooctanoic acid (PFOA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 14:43	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 14:43	1
Perfluorobutanoic acid (PFBA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 14:43	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 14:43	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 14:43	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 14:43	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 14:43	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 14:43	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 14:43	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 14:43	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 14:43	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 14:43	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	ng/L		03/26/23 17:30	03/30/23 14:43	1

Isotope Dilution	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	84		50 - 200	03/26/23 17:30	03/30/23 14:43	1
13C6 PFDA	93		50 - 200	03/26/23 17:30	03/30/23 14:43	1
13C5 PFHxA	86		50 - 200	03/26/23 17:30	03/30/23 14:43	1
13C4 PFHpA	85		50 - 200	03/26/23 17:30	03/30/23 14:43	1
13C8 PFOA	90		50 - 200	03/26/23 17:30	03/30/23 14:43	1
13C9 PFNA	87		50 - 200	03/26/23 17:30	03/30/23 14:43	1
13C7 PFUnA	82		50 - 200	03/26/23 17:30	03/30/23 14:43	1
13C2 PFDoA	83		50 - 200	03/26/23 17:30	03/30/23 14:43	1
13C4 PFBA	86		50 - 200	03/26/23 17:30	03/30/23 14:43	1
13C5 PFPeA	85		50 - 200	03/26/23 17:30	03/30/23 14:43	1
13C3 PFBS	88		50 - 200	03/26/23 17:30	03/30/23 14:43	1
13C3 PFHxS	87		50 - 200	03/26/23 17:30	03/30/23 14:43	1

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# QC Sample Results

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

Job ID: 380-40536-1

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

**Lab Sample ID: MBL 380-34852/21-A**  
**Matrix: Water**  
**Analysis Batch: 35136**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 34852**

<i>Isotope Dilution</i>	<i>MBL %Recovery</i>	<i>MBL Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C8 PFOS	86		50 - 200	03/26/23 17:30	03/30/23 14:43	1
13C2-4:2-FTS	108		50 - 200	03/26/23 17:30	03/30/23 14:43	1
13C2-6:2-FTS	100		50 - 200	03/26/23 17:30	03/30/23 14:43	1
13C2-8:2-FTS	154		50 - 200	03/26/23 17:30	03/30/23 14:43	1

**Lab Sample ID: LCS 380-34852/23-A**  
**Matrix: Water**  
**Analysis Batch: 35136**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 34852**

<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)	60.1	55.7		ng/L		93	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	60.1	55.0		ng/L		92	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	60.1	55.0		ng/L		91	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	60.1	56.9		ng/L		95	70 - 130
Perfluorobutanesulfonic acid (PFBS)	60.1	58.1		ng/L		97	70 - 130
Perfluorodecanoic acid (PFDA)	60.1	58.1		ng/L		97	70 - 130
Perfluorododecanoic acid (PFDoA)	60.1	58.3		ng/L		97	70 - 130
Perfluoroheptanoic acid (PFHpA)	60.1	56.8		ng/L		95	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	60.1	56.2		ng/L		93	70 - 130
Perfluorohexanoic acid (PFHxA)	60.1	57.5		ng/L		96	70 - 130
Perfluorononanoic acid (PFNA)	60.1	57.4		ng/L		95	70 - 130
Perfluorooctanesulfonic acid (PFOS)	60.1	57.0		ng/L		95	70 - 130
Perfluorooctanoic acid (PFOA)	60.1	56.2		ng/L		93	70 - 130
Perfluoroundecanoic acid (PFUnA)	60.1	57.6		ng/L		96	70 - 130
Perfluorobutanoic acid (PFBA)	60.1	58.8		ng/L		98	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	59.8		ng/L		99	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	60.1	61.3		ng/L		102	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	60.1	56.6		ng/L		94	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	60.1	59.3		ng/L		99	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	60.1	57.7		ng/L		96	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	60.1	56.4		ng/L		94	70 - 130
Perfluoropentanoic acid (PFPeA)	60.1	59.5		ng/L		99	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	60.1	58.9		ng/L		98	70 - 130

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# QC Sample Results

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

Job ID: 380-40536-1

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

**Lab Sample ID: LCS 380-34852/23-A**  
**Matrix: Water**  
**Analysis Batch: 35136**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 34852**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoropentanesulfonic acid (PFPeS)	60.1	55.9		ng/L		93	70 - 130
<b>LCS LCS</b>							
<b>Isotope Dilution</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				
13C3 HFPO-DA	85		50 - 200				
13C6 PFDA	85		50 - 200				
13C5 PFHxA	84		50 - 200				
13C4 PFHpA	85		50 - 200				
13C8 PFOA	91		50 - 200				
13C9 PFNA	90		50 - 200				
13C7 PFUnA	84		50 - 200				
13C2 PFDoA	82		50 - 200				
13C4 PFBA	87		50 - 200				
13C5 PFPeA	85		50 - 200				
13C3 PFBS	86		50 - 200				
13C3 PFHxS	88		50 - 200				
13C8 PFOS	90		50 - 200				
13C2-4:2-FTS	97		50 - 200				
13C2-6:2-FTS	93		50 - 200				
13C2-8:2-FTS	92		50 - 200				

**Lab Sample ID: LCSD 380-34852/24-A**  
**Matrix: Water**  
**Analysis Batch: 35136**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 34852**

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	56.8		ng/L		94	70 - 130	2	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	60.1	56.1		ng/L		93	70 - 130	2	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	60.1	55.8		ng/L		93	70 - 130	1	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	60.1	58.5		ng/L		97	70 - 130	3	30
Perfluorobutanesulfonic acid (PFBS)	60.1	58.0		ng/L		96	70 - 130	0	30
Perfluorodecanoic acid (PFDA)	60.1	57.6		ng/L		96	70 - 130	1	30
Perfluorododecanoic acid (PFDoA)	60.1	55.8		ng/L		93	70 - 130	5	30
Perfluoroheptanoic acid (PFHpA)	60.1	56.7		ng/L		94	70 - 130	0	30
Perfluorohexanesulfonic acid (PFHxS)	60.1	56.1		ng/L		93	70 - 130	0	30
Perfluorohexanoic acid (PFHxA)	60.1	56.8		ng/L		95	70 - 130	1	30
Perfluorononanoic acid (PFNA)	60.1	57.9		ng/L		96	70 - 130	1	30
Perfluorooctanesulfonic acid (PFOS)	60.1	55.8		ng/L		93	70 - 130	2	30
Perfluorooctanoic acid (PFOA)	60.1	56.8		ng/L		95	70 - 130	1	30
Perfluoroundecanoic acid (PFUnA)	60.1	59.6		ng/L		99	70 - 130	3	30
Perfluorobutanoic acid (PFBA)	60.1	59.9		ng/L		100	70 - 130	2	30

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-40536-1

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

**Lab Sample ID: LCSD 380-34852/24-A**  
**Matrix: Water**  
**Analysis Batch: 35136**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 34852**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	60.1	59.3		ng/L		99	70 - 130	2	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	60.1	57.1		ng/L		95	70 - 130	5	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	60.1	58.1		ng/L		97	70 - 130	5	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	60.1	54.9		ng/L		91	70 - 130	3	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	60.1	57.5		ng/L		96	70 - 130	3	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	60.1	60.2		ng/L		100	70 - 130	4	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	60.1	55.6		ng/L		92	70 - 130	1	30
Perfluoropentanoic acid (PFPeA)	60.1	56.5		ng/L		94	70 - 130	5	30
Perfluoroheptanesulfonic acid (PFHpS)	60.1	60.0		ng/L		100	70 - 130	2	30
Perfluoropentanesulfonic acid (PFPeS)	60.1	53.7		ng/L		89	70 - 130	4	30

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	LCSD Limits
13C3 HFPO-DA	85		50 - 200
13C6 PFDA	87		50 - 200
13C5 PFHxA	90		50 - 200
13C4 PFHpA	89		50 - 200
13C8 PFOA	89		50 - 200
13C9 PFNA	88		50 - 200
13C7 PFUnA	82		50 - 200
13C2 PFDoA	87		50 - 200
13C4 PFBA	88		50 - 200
13C5 PFPeA	88		50 - 200
13C3 PFBS	83		50 - 200
13C3 PFHxS	85		50 - 200
13C8 PFOS	85		50 - 200
13C2-4:2-FTS	93		50 - 200
13C2-6:2-FTS	88		50 - 200
13C2-8:2-FTS	88		50 - 200

**Lab Sample ID: MRL 380-34852/22-A**  
**Matrix: Water**  
**Analysis Batch: 35136**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 34852**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.00	2.03		ng/L		101	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.00	1.97	J	ng/L		99	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	2.12		ng/L		106	50 - 150

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# QC Sample Results

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

Job ID: 380-40536-1

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

**Lab Sample ID: MRL 380-34852/22-A**  
**Matrix: Water**  
**Analysis Batch: 35136**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 34852**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	2.13		ng/L		107	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.00	1.97	J	ng/L		99	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	2.20		ng/L		110	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	2.23		ng/L		112	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	2.13		ng/L		107	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.00	2.07		ng/L		104	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	2.13		ng/L		106	50 - 150
Perfluorononanoic acid (PFNA)	2.00	2.14		ng/L		107	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.00	2.05		ng/L		102	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	2.22		ng/L		111	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	2.26		ng/L		113	50 - 150
Perfluorobutanoic acid (PFBA)	2.00	2.14		ng/L		107	50 - 150
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	2.00	2.07		ng/L		103	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	2.00	2.13		ng/L		107	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	2.00	2.26		ng/L		113	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.00	1.95	J	ng/L		97	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	2.00	2.12		ng/L		106	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.00	2.13		ng/L		106	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.00	1.88	J	ng/L		94	50 - 150
Perfluoropentanoic acid (PFPeA)	2.00	2.12		ng/L		106	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	2.00	2.09		ng/L		105	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	2.00	2.03		ng/L		102	50 - 150

Isotope Dilution	MRL %Recovery	MRL Qualifier	MRL Limits
13C3 HFPO-DA	85		50 - 200
13C6 PFDA	82		50 - 200
13C5 PFHxA	92		50 - 200
13C4 PFHpA	87		50 - 200
13C8 PFOA	89		50 - 200
13C9 PFNA	87		50 - 200
13C7 PFUnA	80		50 - 200
13C2 PFDoA	81		50 - 200
13C4 PFBA	86		50 - 200
13C5 PFPeA	92		50 - 200
13C3 PFBS	93		50 - 200
13C3 PFHxS	87		50 - 200
13C8 PFOS	86		50 - 200

# QC Sample Results

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

Job ID: 380-40536-1

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

**Lab Sample ID: MRL 380-34852/22-A**  
**Matrix: Water**  
**Analysis Batch: 35136**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 34852**

<i>Isotope Dilution</i>	<i>MRL %Recovery</i>	<i>MRL Qualifier</i>	<i>Limits</i>
13C2-4:2-FTS	106		50 - 200
13C2-6:2-FTS	96		50 - 200
13C2-8:2-FTS	91		50 - 200

**Lab Sample ID: 380-40536-4 LMS**  
**Matrix: Drinking Water**  
**Analysis Batch: 35136**

**Client Sample ID: AIEA GULCH WELLS PUMP 2 (331-202-TP072)**  
**Prep Type: Total/NA**  
**Prep Batch: 34852**

<b>Analyte</b>	<b>Sample Result</b>	<b>Sample Qualifier</b>	<b>Spike Added</b>	<b>LMS Result</b>	<b>LMS Qualifier</b>	<b>Unit</b>	<b>D</b>	<b>%Rec</b>	<b>%Rec Limits</b>
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		2.01	1.85	J	ng/L		92	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		2.01	1.96	J	ng/L		98	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.01	2.04		ng/L		101	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		2.01	2.04		ng/L		101	50 - 150
Perfluorobutanesulfonic acid (PFBS)	ND		2.01	2.26		ng/L		113	50 - 150
Perfluorodecanoic acid (PFDA)	ND		2.01	2.23		ng/L		111	50 - 150
Perfluorododecanoic acid (PFDoA)	ND		2.01	2.06		ng/L		103	50 - 150
Perfluoroheptanoic acid (PFHpA)	ND		2.01	2.30		ng/L		115	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	ND		2.01	2.29		ng/L		114	50 - 150
Perfluorohexanoic acid (PFHxA)	ND		2.01	2.30		ng/L		115	50 - 150
Perfluorononanoic acid (PFNA)	ND		2.01	2.18		ng/L		109	50 - 150
Perfluorooctanesulfonic acid (PFOS)	ND		2.01	2.06		ng/L		103	50 - 150
Perfluorooctanoic acid (PFOA)	ND		2.01	2.45		ng/L		98	50 - 150
Perfluoroundecanoic acid (PFUnA)	ND		2.01	2.14		ng/L		106	50 - 150
Perfluorobutanoic acid (PFBA)	ND		2.01	2.21		ng/L		110	50 - 150
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		2.01	2.39		ng/L		119	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		2.01	2.19		ng/L		109	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		2.01	2.25		ng/L		112	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		2.01	1.92	J	ng/L		96	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		2.01	2.18		ng/L		109	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		2.01	2.01		ng/L		100	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		2.01	1.92	J	ng/L		96	50 - 150
Perfluoropentanoic acid (PFPeA)	ND		2.01	2.52		ng/L		103	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.01	2.04		ng/L		102	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	ND		2.01	2.09		ng/L		104	50 - 150

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# QC Sample Results

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

Job ID: 380-40536-1

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

<i>Isotope Dilution</i>	<i>LMS</i> <i>%Recovery</i>	<i>LMS</i> <i>Qualifier</i>	<i>Limits</i>
13C3 HFPO-DA	69		50 - 200
13C6 PFDA	78		50 - 200
13C5 PFHxA	75		50 - 200
13C4 PFHpA	74		50 - 200
13C8 PFOA	79		50 - 200
13C9 PFNA	79		50 - 200
13C7 PFUnA	75		50 - 200
13C2 PFDoA	76		50 - 200
13C4 PFBA	75		50 - 200
13C5 PFPeA	76		50 - 200
13C3 PFBS	85		50 - 200
13C3 PFHxS	85		50 - 200
13C8 PFOS	87		50 - 200
13C2-4:2-FTS	96		50 - 200
13C2-6:2-FTS	90		50 - 200
13C2-8:2-FTS	87		50 - 200

**Lab Sample ID: 380-40536-4 LMSD**  
**Matrix: Drinking Water**  
**Analysis Batch: 35136**

**Client Sample ID: AIEA GULCH WELLS PUMP 2 (331-202-TP072)**  
**Prep Type: Total/NA**  
**Prep Batch: 34852**

<i>Analyte</i>	<i>Sample</i> <i>Result</i>	<i>Sample</i> <i>Qualifier</i>	<i>Spike</i> <i>Added</i>	<i>LMSD</i> <i>Result</i>	<i>LMSD</i> <i>Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec</i> <i>Limits</i>	<i>RPD</i>	<i>RPD</i> <i>Limit</i>
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		2.01	1.94	J	ng/L		97	50 - 150	5	50
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		2.01	2.02		ng/L		101	50 - 150	3	50
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.01	1.96	J	ng/L		98	50 - 150	4	50
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		2.01	1.99	J	ng/L		99	50 - 150	2	50
Perfluorobutanesulfonic acid (PFBS)	ND		2.01	2.25		ng/L		112	50 - 150	1	50
Perfluorodecanoic acid (PFDA)	ND		2.01	2.17		ng/L		108	50 - 150	3	50
Perfluorododecanoic acid (PFDoA)	ND		2.01	2.20		ng/L		110	50 - 150	6	50
Perfluoroheptanoic acid (PFHpA)	ND		2.01	2.29		ng/L		114	50 - 150	1	50
Perfluorohexanesulfonic acid (PFHxS)	ND		2.01	2.32		ng/L		116	50 - 150	2	50
Perfluorohexanoic acid (PFHxA)	ND		2.01	2.40		ng/L		119	50 - 150	4	50
Perfluorononanoic acid (PFNA)	ND		2.01	2.16		ng/L		108	50 - 150	1	50
Perfluorooctanesulfonic acid (PFOS)	ND		2.01	2.08		ng/L		103	50 - 150	1	50
Perfluorooctanoic acid (PFOA)	ND		2.01	2.43		ng/L		97	50 - 150	1	50
Perfluoroundecanoic acid (PFUnA)	ND		2.01	2.38		ng/L		118	50 - 150	11	50
Perfluorobutanoic acid (PFBA)	ND		2.01	2.35		ng/L		117	50 - 150	6	50
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		2.01	2.40		ng/L		120	50 - 150	1	50
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		2.01	2.19		ng/L		109	50 - 150	0	50
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		2.01	2.30		ng/L		115	50 - 150	2	50

# QC Sample Results

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

Job ID: 380-40536-1

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

**Lab Sample ID: 380-40536-4 LMSD**

**Client Sample ID: AIEA GULCH WELLS PUMP 2 (331-202-TP072)**

**Matrix: Drinking Water**

**Prep Type: Total/NA**

**Analysis Batch: 35136**

**Prep Batch: 34852**

Analyte	Sample Result	Sample Qualifier	Spike Added	LMSD Result	LMSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		2.01	2.05		ng/L		102	50 - 150	6	50
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	ND		2.01	2.13		ng/L		106	50 - 150	3	50
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		2.01	2.07		ng/L		103	50 - 150	3	50
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		2.01	2.27		ng/L		113	50 - 150	16	50
Perfluoropentanoic acid (PFPeA)	ND		2.01	2.78		ng/L		116	50 - 150	10	50
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.01	2.16		ng/L		108	50 - 150	6	50
Perfluoropentanesulfonic acid (PFPeS)	ND		2.01	1.99	J	ng/L		99	50 - 150	5	50
Isotope Dilution	LMSD %Recovery	LMSD Qualifier	Limits								
13C3 HFPO-DA	75		50 - 200								
13C6 PFDA	78		50 - 200								
13C5 PFHxA	77		50 - 200								
13C4 PFHpA	78		50 - 200								
13C8 PFOA	83		50 - 200								
13C9 PFNA	80		50 - 200								
13C7 PFUnA	76		50 - 200								
13C2 PFDoA	77		50 - 200								
13C4 PFBA	76		50 - 200								
13C5 PFPeA	73		50 - 200								
13C3 PFBS	87		50 - 200								
13C3 PFHxS	86		50 - 200								
13C8 PFOS	84		50 - 200								
13C2-4:2-FTS	93		50 - 200								
13C2-6:2-FTS	89		50 - 200								
13C2-8:2-FTS	87		50 - 200								

**Lab Sample ID: MBL 380-35219/21-A**

**Client Sample ID: Method Blank**

**Matrix: Water**

**Prep Type: Total/NA**

**Analysis Batch: 35366**

**Prep Batch: 35219**

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosfluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 12:34	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 12:34	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 12:34	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 12:34	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 12:34	1
Perfluorodecanoic acid (PFDA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 12:34	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 12:34	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 12:34	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 12:34	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 12:34	1

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# QC Sample Results

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

Job ID: 380-40536-1

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

**Lab Sample ID: MBL 380-35219/21-A**  
**Matrix: Water**  
**Analysis Batch: 35366**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 35219**

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid (PFNA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 12:34	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 12:34	1
Perfluorooctanoic acid (PFOA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 12:34	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 12:34	1
Perfluorobutanoic acid (PFBA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 12:34	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 12:34	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 12:34	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 12:34	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 12:34	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 12:34	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 12:34	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 12:34	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 12:34	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 12:34	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	ng/L		03/30/23 12:35	04/01/23 12:34	1

Isotope Dilution	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	87		50 - 200	03/30/23 12:35	04/01/23 12:34	1
13C6 PFDA	90		50 - 200	03/30/23 12:35	04/01/23 12:34	1
13C5 PFHxA	100		50 - 200	03/30/23 12:35	04/01/23 12:34	1
13C4 PFHpA	95		50 - 200	03/30/23 12:35	04/01/23 12:34	1
13C8 PFOA	94		50 - 200	03/30/23 12:35	04/01/23 12:34	1
13C9 PFNA	93		50 - 200	03/30/23 12:35	04/01/23 12:34	1
13C7 PFUnA	88		50 - 200	03/30/23 12:35	04/01/23 12:34	1
13C2 PFDoA	89		50 - 200	03/30/23 12:35	04/01/23 12:34	1
13C4 PFBA	96		50 - 200	03/30/23 12:35	04/01/23 12:34	1
13C5 PFPeA	106		50 - 200	03/30/23 12:35	04/01/23 12:34	1
13C3 PFBS	97		50 - 200	03/30/23 12:35	04/01/23 12:34	1
13C3 PFHxS	94		50 - 200	03/30/23 12:35	04/01/23 12:34	1
13C8 PFOS	93		50 - 200	03/30/23 12:35	04/01/23 12:34	1
13C2-4:2-FTS	111		50 - 200	03/30/23 12:35	04/01/23 12:34	1
13C2-6:2-FTS	98		50 - 200	03/30/23 12:35	04/01/23 12:34	1
13C2-8:2-FTS	106		50 - 200	03/30/23 12:35	04/01/23 12:34	1

**Lab Sample ID: LCS 380-35219/23-A**  
**Matrix: Water**  
**Analysis Batch: 35366**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 35219**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3OUdS)	120	103		ng/L		86	70 - 130

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# QC Sample Results

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

Job ID: 380-40536-1

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

**Lab Sample ID: LCS 380-35219/23-A**  
**Matrix: Water**  
**Analysis Batch: 35366**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 35219**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	120	104		ng/L		87	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	120	109		ng/L		91	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	120	105		ng/L		87	70 - 130
Perfluorobutanesulfonic acid (PFBS)	120	107		ng/L		89	70 - 130
Perfluorodecanoic acid (PFDA)	120	110		ng/L		92	70 - 130
Perfluorododecanoic acid (PFDoA)	120	110		ng/L		92	70 - 130
Perfluoroheptanoic acid (PFHpA)	120	104		ng/L		87	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	120	109		ng/L		91	70 - 130
Perfluorohexanoic acid (PFHxA)	120	107		ng/L		89	70 - 130
Perfluorononanoic acid (PFNA)	120	110		ng/L		92	70 - 130
Perfluorooctanesulfonic acid (PFOS)	120	110		ng/L		92	70 - 130
Perfluorooctanoic acid (PFOA)	120	108		ng/L		90	70 - 130
Perfluoroundecanoic acid (PFUnA)	120	105		ng/L		87	70 - 130
Perfluorobutanoic acid (PFBA)	120	110		ng/L		92	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	120	102		ng/L		85	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	120	104		ng/L		86	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	120	107		ng/L		89	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	120	112		ng/L		93	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	120	105		ng/L		88	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	120	116		ng/L		96	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	120	110		ng/L		92	70 - 130
Perfluoropentanoic acid (PFPeA)	120	107		ng/L		89	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	120	108		ng/L		90	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	120	107		ng/L		89	70 - 130

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	99		50 - 200
13C6 PFDA	91		50 - 200
13C5 PFHxA	98		50 - 200
13C4 PFHpA	99		50 - 200
13C8 PFOA	96		50 - 200
13C9 PFNA	95		50 - 200
13C7 PFUnA	94		50 - 200
13C2 PFDoA	89		50 - 200
13C4 PFBA	96		50 - 200

# QC Sample Results

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

Job ID: 380-40536-1

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

**Lab Sample ID: LCS 380-35219/23-A**  
**Matrix: Water**  
**Analysis Batch: 35366**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 35219**

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C5 PFPeA	98		50 - 200
13C3 PFBS	96		50 - 200
13C3 PFHxS	98		50 - 200
13C8 PFOS	96		50 - 200
13C2-4:2-FTS	111		50 - 200
13C2-6:2-FTS	102		50 - 200
13C2-8:2-FTS	95		50 - 200

**Lab Sample ID: LCSD 380-35219/24-A**  
**Matrix: Water**  
**Analysis Batch: 35366**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 35219**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	RPD Limit
							Limits	RPD		
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	120	100		ng/L		83	70 - 130	3	30	
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	120	100		ng/L		83	70 - 130	4	30	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	120	108		ng/L		90	70 - 130	1	30	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	120	110		ng/L		91	70 - 130	4	30	
Perfluorobutanesulfonic acid (PFBS)	120	105		ng/L		87	70 - 130	2	30	
Perfluorodecanoic acid (PFDA)	120	111		ng/L		92	70 - 130	1	30	
Perfluorododecanoic acid (PFDoA)	120	107		ng/L		89	70 - 130	3	30	
Perfluoroheptanoic acid (PFHpA)	120	105		ng/L		88	70 - 130	1	30	
Perfluorohexanesulfonic acid (PFHxS)	120	109		ng/L		91	70 - 130	0	30	
Perfluorohexanoic acid (PFHxA)	120	106		ng/L		89	70 - 130	1	30	
Perfluorononanoic acid (PFNA)	120	109		ng/L		91	70 - 130	1	30	
Perfluorooctanesulfonic acid (PFOS)	120	106		ng/L		88	70 - 130	4	30	
Perfluorooctanoic acid (PFOA)	120	109		ng/L		91	70 - 130	1	30	
Perfluoroundecanoic acid (PFUnA)	120	108		ng/L		90	70 - 130	3	30	
Perfluorobutanoic acid (PFBA)	120	113		ng/L		94	70 - 130	2	30	
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	120	109		ng/L		90	70 - 130	6	30	
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	120	110		ng/L		92	70 - 130	6	30	
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	120	110		ng/L		92	70 - 130	3	30	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	120	110		ng/L		92	70 - 130	2	30	
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	120	106		ng/L		88	70 - 130	1	30	
Perfluoro-3-methoxypropanoic acid (PFMPA)	120	117		ng/L		97	70 - 130	1	30	
Perfluoro-4-methoxybutanoic acid (PFMBA)	120	104		ng/L		86	70 - 130	6	30	

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# QC Sample Results

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

Job ID: 380-40536-1

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

**Lab Sample ID: LCSD 380-35219/24-A**  
**Matrix: Water**  
**Analysis Batch: 35366**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 35219**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluoropentanoic acid (PFPeA)	120	108		ng/L		90	70 - 130	2	30
Perfluoroheptanesulfonic acid (PFHpS)	120	105		ng/L		87	70 - 130	3	30
Perfluoropentanesulfonic acid (PFPeS)	120	108		ng/L		90	70 - 130	1	30

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	LCSD Limits
13C3 HFPO-DA	98		50 - 200
13C6 PFDA	94		50 - 200
13C5 PFHxA	100		50 - 200
13C4 PFHpA	100		50 - 200
13C8 PFOA	96		50 - 200
13C9 PFNA	99		50 - 200
13C7 PFUnA	95		50 - 200
13C2 PFDoA	93		50 - 200
13C4 PFBA	97		50 - 200
13C5 PFPeA	100		50 - 200
13C3 PFBS	93		50 - 200
13C3 PFHxS	96		50 - 200
13C8 PFOS	98		50 - 200
13C2-4:2-FTS	102		50 - 200
13C2-6:2-FTS	96		50 - 200
13C2-8:2-FTS	92		50 - 200

**Lab Sample ID: MRL 380-35219/22-A**  
**Matrix: Water**  
**Analysis Batch: 35366**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 35219**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.00	1.86	J	ng/L		93	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.00	1.89	J	ng/L		94	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	1.92	J	ng/L		96	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	2.07		ng/L		103	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.00	2.06		ng/L		103	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	2.21		ng/L		110	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	2.20		ng/L		110	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	2.02		ng/L		101	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.00	2.02		ng/L		101	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	2.12		ng/L		106	50 - 150
Perfluorononanoic acid (PFNA)	2.00	2.34		ng/L		117	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.00	2.08		ng/L		104	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	2.47		ng/L		123	50 - 150

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# QC Sample Results

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

Job ID: 380-40536-1

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

**Lab Sample ID: MRL 380-35219/22-A**  
**Matrix: Water**  
**Analysis Batch: 35366**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 35219**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroundecanoic acid (PFUnA)	2.00	2.30		ng/L		115	50 - 150
Perfluorobutanoic acid (PFBA)	2.00	2.22		ng/L		111	50 - 150
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	2.00	2.22		ng/L		111	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	2.00	2.14		ng/L		107	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	2.00	2.48		ng/L		124	50 - 150
Nonafluoro-3,6-dioxiheptanoic acid (NFDHA)	2.00	1.95	J	ng/L		97	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	2.00	1.95	J	ng/L		98	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.00	2.37		ng/L		118	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.00	1.96	J	ng/L		98	50 - 150
Perfluoropentanoic acid (PFPeA)	2.00	2.15		ng/L		107	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	2.00	2.15		ng/L		107	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	2.00	2.05		ng/L		102	50 - 150

Isotope Dilution	MRL %Recovery	MRL Qualifier	MRL Limits
13C3 HFPO-DA	87		50 - 200
13C6 PFDA	85		50 - 200
13C5 PFHxA	96		50 - 200
13C4 PFHpA	98		50 - 200
13C8 PFOA	95		50 - 200
13C9 PFNA	91		50 - 200
13C7 PFUnA	85		50 - 200
13C2 PFDoA	82		50 - 200
13C4 PFBA	91		50 - 200
13C5 PFPeA	97		50 - 200
13C3 PFBS	92		50 - 200
13C3 PFHxS	95		50 - 200
13C8 PFOS	91		50 - 200
13C2-4:2-FTS	105		50 - 200
13C2-6:2-FTS	93		50 - 200
13C2-8:2-FTS	84		50 - 200

**Lab Sample ID: 380-40727-B-1-A LMS**  
**Matrix: Water**  
**Analysis Batch: 35366**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 35219**

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)	ND		2.00	1.90	J	ng/L		95	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		2.00	1.87	J	ng/L		93	50 - 150

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# QC Sample Results

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

Job ID: 380-40536-1

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

**Lab Sample ID: 380-40727-B-1-A LMS**  
**Matrix: Water**  
**Analysis Batch: 35366**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 35219**

Analyte	Sample Result	Sample Qualifier	Spike Added	LMS Result	LMS Qualifier	Unit	D	%Rec	%Rec Limits
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.00	2.19		ng/L		109	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		2.00	2.21		ng/L		110	50 - 150
Perfluorobutanesulfonic acid (PFBS)	ND	F1	2.00	2.07	F1	ng/L		48	50 - 150
Perfluorodecanoic acid (PFDA)	ND		2.00	2.24		ng/L		112	50 - 150
Perfluorododecanoic acid (PFDoA)	ND		2.00	2.11		ng/L		105	50 - 150
Perfluoroheptanoic acid (PFHpA)	ND	F1	2.00	2.23		ng/L		86	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	ND	F1	2.00	2.14		ng/L		70	50 - 150
Perfluorohexanoic acid (PFHxA)	ND	F1	2.00	2.19	F1	ng/L		47	50 - 150
Perfluorononanoic acid (PFNA)	ND		2.00	2.28		ng/L		114	50 - 150
Perfluorooctanesulfonic acid (PFOS)	ND	F1	2.00	2.08		ng/L		62	50 - 150
Perfluorooctanoic acid (PFOA)	ND	F1	2.00	2.46	F1	ng/L		44	50 - 150
Perfluoroundecanoic acid (PFUnA)	ND		2.00	2.37		ng/L		118	50 - 150
Perfluorobutanoic acid (PFBA)	3.4	F1	2.00	2.34	F1	ng/L		-54	50 - 150
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		2.00	2.36		ng/L		118	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		2.00	2.38		ng/L		119	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		2.00	2.32		ng/L		116	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		2.00	1.89	J	ng/L		94	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	ND		2.00	2.03		ng/L		101	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		2.00	2.40		ng/L		120	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		2.00	2.25		ng/L		112	50 - 150
Perfluoropentanoic acid (PFPeA)	ND	F1	2.00	2.34	F1	ng/L		42	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.00	2.12		ng/L		106	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	ND	F1	2.00	2.01		ng/L		79	50 - 150

Isotope Dilution	LMS %Recovery	LMS Qualifier	Limits
13C3 HFPO-DA	90		50 - 200
13C6 PFDA	88		50 - 200
13C5 PFHxA	98		50 - 200
13C4 PFHpA	93		50 - 200
13C8 PFOA	95		50 - 200
13C9 PFNA	92		50 - 200
13C7 PFUnA	86		50 - 200
13C2 PFDoA	91		50 - 200
13C4 PFBA	96		50 - 200
13C5 PFPeA	102		50 - 200
13C3 PFBS	95		50 - 200
13C3 PFHxS	92		50 - 200

# QC Sample Results

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

Job ID: 380-40536-1

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

**Lab Sample ID: 380-40727-B-1-A LMS**  
**Matrix: Water**  
**Analysis Batch: 35366**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 35219**

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
13C8 PFOS	96		50 - 200
13C2-4:2-FTS	106		50 - 200
13C2-6:2-FTS	93		50 - 200
13C2-8:2-FTS	86		50 - 200

**Lab Sample ID: 380-40727-B-2-A DU**  
**Matrix: Water**  
**Analysis Batch: 35366**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 35219**

<b>Analyte</b>	<b>Sample Result</b>	<b>Sample Qualifier</b>	<b>DU Result</b>	<b>DU Qualifier</b>	<b>Unit</b>	<b>D</b>	<b>RPD</b>	<b>RPD Limit</b>
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		ND		ng/L		NC	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		ND		ng/L		NC	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		ND		ng/L		NC	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		ND		ng/L		NC	30
Perfluorobutanesulfonic acid (PFBS)	ND		ND		ng/L		NC	30
Perfluorodecanoic acid (PFDA)	ND		ND		ng/L		NC	30
Perfluorododecanoic acid (PFDoA)	ND		ND		ng/L		NC	30
Perfluoroheptanoic acid (PFHpA)	ND		ND		ng/L		NC	30
Perfluorohexanesulfonic acid (PFHxS)	ND		ND		ng/L		NC	30
Perfluorohexanoic acid (PFHxA)	ND		ND		ng/L		NC	30
Perfluorononanoic acid (PFNA)	ND		ND		ng/L		NC	30
Perfluorooctanesulfonic acid (PFOS)	ND		ND		ng/L		NC	30
Perfluorooctanoic acid (PFOA)	ND		ND		ng/L		NC	30
Perfluoroundecanoic acid (PFUnA)	ND		ND		ng/L		NC	30
Perfluorobutanoic acid (PFBA)	3.4		3.55		ng/L		3	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		ND		ng/L		NC	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		ND		ng/L		NC	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		ND		ng/L		NC	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		ND		ng/L		NC	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		ND		ng/L		NC	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		ND		ng/L		NC	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		ND		ng/L		NC	30
Perfluoropentanoic acid (PFPeA)	ND		ND		ng/L		NC	30
Perfluoroheptanesulfonic acid (PFHpS)	ND		ND		ng/L		NC	30

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# QC Sample Results

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

Job ID: 380-40536-1

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

**Lab Sample ID: 380-40727-B-2-A DU**  
**Matrix: Water**  
**Analysis Batch: 35366**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 35219**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Perfluoropentanesulfonic acid (PFPeS)	ND		ND		ng/L		NC	30
<b>DU DU</b>								
<b>Isotope Dilution</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>					
13C3 HFPO-DA	88		50 - 200					
13C6 PFDA	86		50 - 200					
13C5 PFHxA	97		50 - 200					
13C4 PFHpA	88		50 - 200					
13C8 PFOA	92		50 - 200					
13C9 PFNA	90		50 - 200					
13C7 PFUnA	82		50 - 200					
13C2 PFDoA	84		50 - 200					
13C4 PFBA	93		50 - 200					
13C5 PFPeA	118		50 - 200					
13C3 PFBS	97		50 - 200					
13C3 PFHxS	95		50 - 200					
13C8 PFOS	94		50 - 200					
13C2-4:2-FTS	133		50 - 200					
13C2-6:2-FTS	101		50 - 200					
13C2-8:2-FTS	97		50 - 200					

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

**Lab Sample ID: MB 380-34117/21-A**  
**Matrix: Water**  
**Analysis Batch: 34181**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 34117**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 05:53	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 05:53	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 05:53	1
N-methylperfluorooctanesulfonamide acetic acid (NMeFOSAA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 05:53	1
N-ethylperfluorooctanesulfonamide acetic acid (NEtFOSAA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 05:53	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 05:53	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 05:53	1
Perfluorooctanoic acid (PFOA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 05:53	1
Perfluorodecanoic acid (PFDA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 05:53	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 05:53	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 05:53	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 05:53	1
Perfluorononanoic acid (PFNA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 05:53	1
Perfluorotetradecanoic acid (PFTA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 05:53	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 05:53	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 05:53	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 05:53	1

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# QC Sample Results

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

Job ID: 380-40536-1

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

**Lab Sample ID: MB 380-34117/21-A**  
**Matrix: Water**  
**Analysis Batch: 34181**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 34117**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	ng/L		03/19/23 18:20	03/21/23 05:53	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	86		70 - 130	03/19/23 18:20	03/21/23 05:53	1
13C2 PFHxA	99		70 - 130	03/19/23 18:20	03/21/23 05:53	1
13C2 PFDA	107		70 - 130	03/19/23 18:20	03/21/23 05:53	1
13C3-GenX	96		70 - 130	03/19/23 18:20	03/21/23 05:53	1

**Lab Sample ID: LCS 380-34117/23-A**  
**Matrix: Water**  
**Analysis Batch: 34181**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 34117**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	50.0	52.9		ng/L		106	70 - 130
Perfluorooctanesulfonic acid (PFOS)	46.3	47.2		ng/L		102	70 - 130
Perfluoroundecanoic acid (PFUnA)	50.0	51.0		ng/L		102	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	50.0	49.5		ng/L		99	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	50.0	49.4		ng/L		99	70 - 130
Perfluorohexanoic acid (PFHxA)	50.0	52.1		ng/L		104	70 - 130
Perfluorododecanoic acid (PFDoA)	50.0	50.4		ng/L		101	70 - 130
Perfluorooctanoic acid (PFOA)	50.0	51.9		ng/L		104	70 - 130
Perfluorodecanoic acid (PFDA)	50.0	51.8		ng/L		104	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	45.6	48.9		ng/L		107	70 - 130
Perfluorobutanesulfonic acid (PFBS)	44.3	48.2		ng/L		109	70 - 130
Perfluoroheptanoic acid (PFHpA)	50.0	53.6		ng/L		107	70 - 130
Perfluorononanoic acid (PFNA)	50.0	51.4		ng/L		103	70 - 130
Perfluorotetradecanoic acid (PFTA)	50.0	40.3		ng/L		81	70 - 130
Perfluorotridecanoic acid (PFTTrDA)	50.0	51.6		ng/L		103	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	46.8	48.8		ng/L		104	70 - 130
11-Chloroeicosafluoro-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	48.8		ng/L		103	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
d5-NEtFOSAA	93		70 - 130
13C2 PFHxA	107		70 - 130
13C2 PFDA	104		70 - 130

Eurofins Eaton Analytical Pomona



# QC Sample Results

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

Job ID: 380-40536-1

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

**Lab Sample ID: LCS 380-34117/23-A**  
**Matrix: Water**  
**Analysis Batch: 34181**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 34117**

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

**Lab Sample ID: LCSD 380-34117/24-A**  
**Matrix: Water**  
**Analysis Batch: 34181**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 34117**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	
							Limits	RPD	Limit	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	50.2	51.0		ng/L		102	70 - 130	4	30	
Perfluorooctanesulfonic acid (PFOS)	46.5	47.1		ng/L		101	70 - 130	0	30	
Perfluoroundecanoic acid (PFUnA)	50.2	49.0		ng/L		98	70 - 130	4	30	
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	50.2	47.0		ng/L		94	70 - 130	5	30	
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	50.2	45.4		ng/L		90	70 - 130	8	30	
Perfluorohexanoic acid (PFHxA)	50.2	50.6		ng/L		101	70 - 130	3	30	
Perfluorododecanoic acid (PFDoA)	50.2	47.8		ng/L		95	70 - 130	5	30	
Perfluorooctanoic acid (PFOA)	50.2	51.6		ng/L		103	70 - 130	1	30	
Perfluorodecanoic acid (PFDA)	50.2	49.6		ng/L		99	70 - 130	4	30	
Perfluorohexanesulfonic acid (PFHxS)	45.8	47.9		ng/L		105	70 - 130	2	30	
Perfluorobutanesulfonic acid (PFBS)	44.4	47.4		ng/L		107	70 - 130	1	30	
Perfluoroheptanoic acid (PFHpA)	50.2	51.3		ng/L		102	70 - 130	4	30	
Perfluorononanoic acid (PFNA)	50.2	50.2		ng/L		100	70 - 130	2	30	
Perfluorotetradecanoic acid (PFTA)	50.2	39.8		ng/L		79	70 - 130	1	30	
Perfluorotridecanoic acid (PFTrDA)	50.2	50.3		ng/L		100	70 - 130	3	30	
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	46.9	46.8		ng/L		100	70 - 130	4	30	
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	47.4	48.4		ng/L		102	70 - 130	1	30	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	47.4	48.3		ng/L		102	70 - 130	1	30	

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
d5-NEtFOSAA	90		70 - 130
13C2 PFHxA	106		70 - 130
13C2 PFDA	103		70 - 130
13C3-GenX	106		70 - 130

# QC Sample Results

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

Job ID: 380-40536-1

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

**Lab Sample ID: MRL 380-34117/22-A**  
**Matrix: Water**  
**Analysis Batch: 34181**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 34117**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	1.88	J	ng/L		94	50 - 150
Perfluorooctanesulfonic acid (PFOS)	1.85	1.69	J	ng/L		91	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	2.10		ng/L		105	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	1.87	J	ng/L		93	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	1.80	J	ng/L		90	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	2.07		ng/L		104	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	1.93	J	ng/L		96	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	2.19		ng/L		109	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	2.00		ng/L		100	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	1.83	1.84	J	ng/L		101	50 - 150
Perfluorobutanesulfonic acid (PFBS)	1.77	1.76	J	ng/L		100	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	2.17		ng/L		108	50 - 150
Perfluorononanoic acid (PFNA)	2.00	1.99	J	ng/L		100	50 - 150
Perfluorotetradecanoic acid (PFTA)	2.00	1.68	J	ng/L		84	50 - 150
Perfluorotridecanoic acid (PFTrDA)	2.00	2.01		ng/L		100	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	1.87	1.80	J	ng/L		96	50 - 150
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	1.89	1.70	J	ng/L		90	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.89	2.12		ng/L		112	50 - 150

Surrogate	MRL %Recovery	MRL Qualifier	MRL Limits
d5-NEtFOSAA	91		70 - 130
13C2 PFHxA	105		70 - 130
13C2 PFDA	107		70 - 130
13C3-GenX	105		70 - 130

**Lab Sample ID: 380-40536-1 MS**  
**Matrix: Drinking Water**  
**Analysis Batch: 34181**

**Client Sample ID: MOANALUA WELLS (331-223-TP202)**  
**Prep Type: Total/NA**  
**Prep Batch: 34117**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		25.1	23.9		ng/L		95	70 - 130
Perfluorooctanesulfonic acid (PFOS)	ND		23.2	21.3		ng/L		92	70 - 130
Perfluoroundecanoic acid (PFUnA)	ND		25.1	23.7		ng/L		95	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		25.1	22.8		ng/L		91	70 - 130

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# QC Sample Results

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

Job ID: 380-40536-1

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

**Lab Sample ID: 380-40536-1 MS**  
**Matrix: Drinking Water**  
**Analysis Batch: 34181**

**Client Sample ID: MOANALUA WELLS (331-223-TP202)**  
**Prep Type: Total/NA**  
**Prep Batch: 34117**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS		Unit	D	%Rec	%Rec Limits	
				Result	Qualifier				Limits	Limits
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		25.1	22.3		ng/L		89	70 - 130	
Perfluorohexanoic acid (PFHxA)	ND		25.1	24.6		ng/L		98	70 - 130	
Perfluorododecanoic acid (PFDoA)	ND		25.1	22.7		ng/L		90	70 - 130	
Perfluorooctanoic acid (PFOA)	ND		25.1	24.2		ng/L		96	70 - 130	
Perfluorodecanoic acid (PFDA)	ND		25.1	23.1		ng/L		92	70 - 130	
Perfluorohexanesulfonic acid (PFHxS)	ND		22.9	22.6		ng/L		99	70 - 130	
Perfluorobutanesulfonic acid (PFBS)	ND		22.2	20.3		ng/L		92	70 - 130	
Perfluoroheptanoic acid (PFHpA)	ND		25.1	24.4		ng/L		97	70 - 130	
Perfluorononanoic acid (PFNA)	ND		25.1	24.2		ng/L		96	70 - 130	
Perfluorotetradecanoic acid (PFTA)	ND		25.1	22.7		ng/L		90	70 - 130	
Perfluorotridecanoic acid (PFTrDA)	ND		25.1	24.1		ng/L		96	70 - 130	
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		23.5	22.2		ng/L		95	70 - 130	
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		23.7	21.4		ng/L		90	70 - 130	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		23.7	22.5		ng/L		91	70 - 130	
<b>MS MS</b>										
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
d5-NEtFOSAA		91		70 - 130						
13C2 PFHxA		105		70 - 130						
13C2 PFDA		103		70 - 130						
13C3-GenX		107		70 - 130						

**Lab Sample ID: 380-40536-1 MSD**  
**Matrix: Drinking Water**  
**Analysis Batch: 34181**

**Client Sample ID: MOANALUA WELLS (331-223-TP202)**  
**Prep Type: Total/NA**  
**Prep Batch: 34117**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD		Unit	D	%Rec	%Rec Limits		RPD	
				Result	Qualifier				Limits	RPD	Limit	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		25.1	25.0		ng/L		100	70 - 130	4	30	
Perfluorooctanesulfonic acid (PFOS)	ND		23.2	23.0		ng/L		99	70 - 130	8	30	
Perfluoroundecanoic acid (PFUnA)	ND		25.1	25.6		ng/L		102	70 - 130	8	30	
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		25.1	23.0		ng/L		92	70 - 130	1	30	
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		25.1	22.4		ng/L		89	70 - 130	0	30	
Perfluorohexanoic acid (PFHxA)	ND		25.1	26.6		ng/L		106	70 - 130	8	30	
Perfluorododecanoic acid (PFDoA)	ND		25.1	24.7		ng/L		98	70 - 130	8	30	
Perfluorooctanoic acid (PFOA)	ND		25.1	25.6		ng/L		102	70 - 130	6	30	
Perfluorodecanoic acid (PFDA)	ND		25.1	25.9		ng/L		103	70 - 130	11	30	

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# QC Sample Results

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

Job ID: 380-40536-1

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

**Lab Sample ID: 380-40536-1 MSD**  
**Matrix: Drinking Water**  
**Analysis Batch: 34181**

**Client Sample ID: MOANALUA WELLS (331-223-TP202)**  
**Prep Type: Total/NA**  
**Prep Batch: 34117**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorohexanesulfonic acid (PFHxS)	ND		22.9	24.0		ng/L		105	70 - 130	6	30
Perfluorobutanesulfonic acid (PFBS)	ND		22.2	23.2		ng/L		105	70 - 130	13	30
Perfluoroheptanoic acid (PFHpA)	ND		25.1	27.0		ng/L		108	70 - 130	10	30
Perfluorononanoic acid (PFNA)	ND		25.1	25.7		ng/L		102	70 - 130	6	30
Perfluorotetradecanoic acid (PFTA)	ND		25.1	22.2		ng/L		88	70 - 130	2	30
Perfluorotridecanoic acid (PFTTrDA)	ND		25.1	25.6		ng/L		102	70 - 130	6	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		23.5	23.9		ng/L		102	70 - 130	7	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		23.7	24.0		ng/L		101	70 - 130	11	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		23.7	24.9		ng/L		101	70 - 130	10	30
<b>Surrogate</b>		<b>MSD %Recovery</b>	<b>MSD Qualifier</b>	<b>Limits</b>							
d5-NEtFOSAA		86		70 - 130							
13C2 PFHxA		110		70 - 130							
13C2 PFDA		107		70 - 130							
13C3-GenX		108		70 - 130							

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

**Lab Sample ID: 104592-B1**  
**Matrix: BlankMatrix**  
**Analysis Batch: O-41002**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: O-41002\_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/30/23 22:59	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/30/23 22:59	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/30/23 22:59	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/30/23 22:59	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/30/23 22:59	1
Acenaphthene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/30/23 22:59	1
Acenaphthylene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/30/23 22:59	1
Anthracene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/30/23 22:59	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/30/23 22:59	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/30/23 22:59	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/30/23 22:59	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/30/23 22:59	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/30/23 22:59	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/30/23 22:59	1
Biphenyl	ND		0.005	0.001	µg/L		03/17/23 00:00	03/30/23 22:59	1
Chrysene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/30/23 22:59	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/30/23 22:59	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/30/23 22:59	1
Dibenzothiophene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/30/23 22:59	1

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# QC Sample Results

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

Job ID: 380-40536-1

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

**Lab Sample ID: 104592-B1**  
**Matrix: BlankMatrix**  
**Analysis Batch: O-41002**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: O-41002\_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Disalicylidenepranediamine	ND		0.1	0.05	µg/L		03/17/23 00:00	03/30/23 22:59	1
Fluoranthene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/30/23 22:59	1
Fluorene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/30/23 22:59	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/30/23 22:59	1
Naphthalene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/30/23 22:59	1
Perylene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/30/23 22:59	1
Phenanthrene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/30/23 22:59	1
Pyrene	ND		0.005	0.001	µg/L		03/17/23 00:00	03/30/23 22:59	1
Surrogate	Blank %Recovery	Blank Qualifier	Limits				Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	91		27 - 133				03/17/23 00:00	03/30/23 22:59	1
(d10-Phenanthrene)	90		43 - 129				03/17/23 00:00	03/30/23 22:59	1
(d12-Chrysene)	137		52 - 144				03/17/23 00:00	03/30/23 22:59	1
(d12-Perylene)	82		36 - 161				03/17/23 00:00	03/30/23 22:59	1
(d8-Naphthalene)	86		25 - 125				03/17/23 00:00	03/30/23 22:59	1

**Lab Sample ID: 104592-BS1**  
**Matrix: BlankMatrix**  
**Analysis Batch: O-41002**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: O-41002\_P**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1-Methylnaphthalene	0.5	0.425		µg/L		85	31 - 128
1-Methylphenanthrene	0.5	0.427		µg/L		85	66 - 127
2,3,5-Trimethylnaphthalene	0.5	0.447		µg/L		89	55 - 122
2,6-Dimethylnaphthalene	0.5	0.432		µg/L		86	48 - 120
2-Methylnaphthalene	0.5	0.421		µg/L		84	47 - 130
Acenaphthene	0.5	0.446		µg/L		89	53 - 131
Acenaphthylene	0.5	0.441		µg/L		88	43 - 140
Anthracene	0.5	0.437		µg/L		87	58 - 135
Benz[a]anthracene	0.5	0.611		µg/L		122	55 - 145
Benzo[a]pyrene	0.5	0.399		µg/L		80	51 - 143
Benzo[b]fluoranthene	0.5	0.468		µg/L		94	46 - 165
Benzo[e]pyrene	0.5	0.446		µg/L		89	42 - 152
Benzo[g,h,i]perylene	0.5	0.436		µg/L		87	63 - 133
Benzo[k]fluoranthene	0.5	0.504		µg/L		101	56 - 145
Biphenyl	0.5	0.443		µg/L		89	56 - 119
Chrysene	0.5	0.652		µg/L		130	56 - 141
Dibenz[a,h]anthracene	0.5	0.45		µg/L		90	55 - 150
Dibenzo[a,l]pyrene	0.25	0.215		µg/L		86	50 - 150
Dibenzothiophene	0.5	0.439		µg/L		88	46 - 126
Disalicylidenepranediamine	50	40.8		µg/L		82	50 - 150
Fluoranthene	0.5	0.426		µg/L		85	60 - 146
Fluorene	0.5	0.455		µg/L		91	58 - 131
Indeno[1,2,3-cd]pyrene	0.5	0.362		µg/L		72	50 - 151
Naphthalene	0.5	0.403		µg/L		81	41 - 126
Perylene	0.5	0.431		µg/L		86	48 - 141
Phenanthrene	0.5	0.442		µg/L		88	67 - 127
Pyrene	0.5	0.427		µg/L		85	54 - 156

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# QC Sample Results

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

Job ID: 380-40536-1

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

**Lab Sample ID: 104592-BS1**  
**Matrix: BlankMatrix**  
**Analysis Batch: O-41002**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: O-41002\_P**

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
(d10-Acenaphthene)	92		27 - 133
(d10-Phenanthrene)	91		43 - 129
(d12-Chrysene)	136		52 - 144
(d12-Perylene)	90		36 - 161
(d8-Naphthalene)	85		25 - 125

**Lab Sample ID: 104592-BS2**  
**Matrix: BlankMatrix**  
**Analysis Batch: O-41002**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: O-41002\_P**

Analyte	Spike Added	LCS DUP Result	LCS DUP Qualifier	Unit	D	%Rec	%Rec		RPD	
							Limits	RPD	Limit	Limit
1-Methylnaphthalene	0.5	0.389		µg/L		78	31 - 128	9	30	
1-Methylphenanthrene	0.5	0.431		µg/L		86	66 - 127	1	30	
2,3,5-Trimethylnaphthalene	0.5	0.433		µg/L		87	55 - 122	2	30	
2,6-Dimethylnaphthalene	0.5	0.407		µg/L		81	48 - 120	6	30	
2-Methylnaphthalene	0.5	0.385		µg/L		77	47 - 130	9	30	
Acenaphthene	0.5	0.427		µg/L		85	53 - 131	5	30	
Acenaphthylene	0.5	0.418		µg/L		84	43 - 140	5	30	
Anthracene	0.5	0.441		µg/L		88	58 - 135	1	30	
Benz[a]anthracene	0.5	0.621		µg/L		124	55 - 145	2	30	
Benzo[a]pyrene	0.5	0.414		µg/L		83	51 - 143	4	30	
Benzo[b]fluoranthene	0.5	0.47		µg/L		94	46 - 165	0	30	
Benzo[e]pyrene	0.5	0.442		µg/L		88	42 - 152	1	30	
Benzo[g,h,i]perylene	0.5	0.438		µg/L		88	63 - 133	1	30	
Benzo[k]fluoranthene	0.5	0.51		µg/L		102	56 - 145	1	30	
Biphenyl	0.5	0.415		µg/L		83	56 - 119	7	30	
Chrysene	0.5	0.663		µg/L		133	56 - 141	2	30	
Dibenz[a,h]anthracene	0.5	0.395		µg/L		79	55 - 150	13	30	
Dibenzo[a,l]pyrene	0.25	0.215		µg/L		86	50 - 150	0	30	
Dibenzothiophene	0.5	0.433		µg/L		87	46 - 126	1	30	
Disalicylidenepropanediamine	50	44.9		µg/L		90	50 - 150	9	30	
Fluoranthene	0.5	0.429		µg/L		86	60 - 146	1	30	
Fluorene	0.5	0.44		µg/L		88	58 - 131	3	30	
Indeno[1,2,3-cd]pyrene	0.5	0.368		µg/L		74	50 - 151	3	30	
Naphthalene	0.5	0.363		µg/L		73	41 - 126	10	30	
Perylene	0.5	0.461		µg/L		92	48 - 141	7	30	
Phenanthrene	0.5	0.445		µg/L		89	67 - 127	1	30	
Pyrene	0.5	0.435		µg/L		87	54 - 156	2	30	

Surrogate	LCS DUP LCS DUP		Limits
	%Recovery	Qualifier	
(d10-Acenaphthene)	87		27 - 133
(d10-Phenanthrene)	91		43 - 129
(d12-Chrysene)	138		52 - 144
(d12-Perylene)	90		36 - 161
(d8-Naphthalene)	78		25 - 125

# QC Sample Results

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

Job ID: 380-40536-1

## Method: 8015 Gas (Purgeable) LL (EAL) - SW846 8015B Gasoline Range Organics

**Lab Sample ID: 23VG39C05B**  
**Matrix: WATER**  
**Analysis Batch: 23VG39C05**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GASOLINE	ND	U	0.02		mg/L			03/17/23 12:01	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
BROMOFLUOROBENZENE								03/17/23 12:01	1

**Lab Sample ID: 23VG39C05L**  
**Matrix: WATER**  
**Analysis Batch: 23VG39C05**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
GASOLINE	0.5	0.461		mg/L		92	60 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
BROMOFLUOROBENZENE	115		70 - 130				

**Lab Sample ID: 23C236-01M**  
**Matrix: WATER**  
**Analysis Batch: 23VG39C05**

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
GASOLINE	ND		0.5	0.47		mg/L		94	50 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
BROMOFLUOROBENZENE	114		60 - 140						

**Lab Sample ID: 23C236-01S**  
**Matrix: WATER**  
**Analysis Batch: 23VG39C05**

**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	Limit
GASOLINE	ND		0.5	0.462		mg/L		92	50 - 130	2	30
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
BROMOFLUOROBENZENE	116		60 - 140								

## Method: 8015 LL DRO/MRO/JP5/JP8 - 8015 - TPH DRO/ORO

**Lab Sample ID: 23DSC021WB**  
**Matrix: WATER**  
**Analysis Batch: 23DSC021W**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DIESEL	ND	U	0.025		mg/L			03/20/23 15:32	1
JP5	ND	U	0.05		mg/L			03/20/23 15:32	1
JP8	ND	U	0.05		mg/L			03/20/23 15:32	1
MOTOR OIL	ND	U	0.05		mg/L			03/20/23 15:32	1

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# QC Sample Results

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

Job ID: 380-40536-1

## Method: 8015 LL DRO/MRO/JP5/JP8 - 8015 - TPH DRO/ORO (Continued)

**Lab Sample ID: 23DSC021WB**  
**Matrix: WATER**  
**Analysis Batch: 23DSC021W**

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

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
BROMOBENZENE					03/20/23 15:32	1
HEXACOSANE					03/20/23 15:32	1

**Lab Sample ID: 23DSC021WL**  
**Matrix: WATER**  
**Analysis Batch: 23DSC021W**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
DIESEL	2.5	2.61		mg/L		104	50 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
BROMOBENZENE	89		60 - 130
HEXACOSANE	113		60 - 130

**Lab Sample ID: 23J5C021WL**  
**Matrix: WATER**  
**Analysis Batch: 23DSC021W**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
JP5	2.5	1.97		mg/L		79	30 - 160

Surrogate	LCS %Recovery	LCS Qualifier	Limits
BROMOBENZENE	83		60 - 130
HEXACOSANE	98		60 - 130

**Lab Sample ID: 23J8C021WL**  
**Matrix: WATER**  
**Analysis Batch: 23DSC021W**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
JP8	2.5	2.02		mg/L		81	30 - 160

Surrogate	LCS %Recovery	LCS Qualifier	Limits
BROMOBENZENE	93		60 - 130
HEXACOSANE	101		60 - 130



# QC Association Summary

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

Job ID: 380-40536-1

## GC/MS Semi VOA

### Prep Batch: 33997

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-40536-1	MOANALUA WELLS (331-223-TP202)	Total/NA	Drinking Water	525.2	
380-40536-2	AIEA WELLS PUMPS 1&2 (260) (331-203-TP400)	Total/NA	Drinking Water	525.2	
380-40536-3	HALAWA WELLS UNITS 1 & 2 (331-206-TP065)	Total/NA	Drinking Water	525.2	
380-40536-4	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	Total/NA	Drinking Water	525.2	
MB 380-33997/1-A	Method Blank	Total/NA	Water	525.2	
LCS 380-33997/3-A	Lab Control Sample	Total/NA	Water	525.2	
LCSD 380-33997/4-A	Lab Control Sample Dup	Total/NA	Water	525.2	
MRL 380-33997/2-A	Lab Control Sample	Total/NA	Water	525.2	
380-40369-AP-1-A MS	Matrix Spike	Total/NA	Water	525.2	
380-40396-AJ-1-A DU	Duplicate	Total/NA	Water	525.2	

### Analysis Batch: 34159

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-40536-1	MOANALUA WELLS (331-223-TP202)	Total/NA	Drinking Water	525.2	33997
380-40536-2	AIEA WELLS PUMPS 1&2 (260) (331-203-TP400)	Total/NA	Drinking Water	525.2	33997
380-40536-3	HALAWA WELLS UNITS 1 & 2 (331-206-TP065)	Total/NA	Drinking Water	525.2	33997
380-40536-4	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	Total/NA	Drinking Water	525.2	33997
MB 380-33997/1-A	Method Blank	Total/NA	Water	525.2	33997
LCS 380-33997/3-A	Lab Control Sample	Total/NA	Water	525.2	33997
LCSD 380-33997/4-A	Lab Control Sample Dup	Total/NA	Water	525.2	33997
MRL 380-33997/2-A	Lab Control Sample	Total/NA	Water	525.2	33997
380-40369-AP-1-A MS	Matrix Spike	Total/NA	Water	525.2	33997
380-40396-AJ-1-A DU	Duplicate	Total/NA	Water	525.2	33997

## LCMS

### Prep Batch: 34117

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-40536-1	MOANALUA WELLS (331-223-TP202)	Total/NA	Drinking Water	537.1 DW	
380-40536-2	AIEA WELLS PUMPS 1&2 (260) (331-203-TP400)	Total/NA	Drinking Water	537.1 DW	
380-40536-3	HALAWA WELLS UNITS 1 & 2 (331-206-TP065)	Total/NA	Drinking Water	537.1 DW	
380-40536-4	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	Total/NA	Drinking Water	537.1 DW	
380-40536-9	FB:MOANALUA WELLS (331-223-TP202)	Total/NA	Water	537.1 DW	
380-40536-10	FB:AIEA WELLS PUMPS 1&2 (260) (331-203-TP400)	Total/NA	Water	537.1 DW	
380-40536-11	FB:HALAWA WELLS UNITS 1&2 (331-206-TP065)	Total/NA	Water	537.1 DW	
380-40536-12	FB:AIEA GULCH WELLS P2 (331-202-TP072)	Total/NA	Water	537.1 DW	
MB 380-34117/21-A	Method Blank	Total/NA	Water	537.1 DW	
LCS 380-34117/23-A	Lab Control Sample	Total/NA	Water	537.1 DW	
LCSD 380-34117/24-A	Lab Control Sample Dup	Total/NA	Water	537.1 DW	
MRL 380-34117/22-A	Lab Control Sample	Total/NA	Water	537.1 DW	
380-40536-1 MS	MOANALUA WELLS (331-223-TP202)	Total/NA	Drinking Water	537.1 DW	
380-40536-1 MSD	MOANALUA WELLS (331-223-TP202)	Total/NA	Drinking Water	537.1 DW	

### Analysis Batch: 34181

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-40536-1	MOANALUA WELLS (331-223-TP202)	Total/NA	Drinking Water	537.1	34117
380-40536-2	AIEA WELLS PUMPS 1&2 (260) (331-203-TP400)	Total/NA	Drinking Water	537.1	34117
380-40536-3	HALAWA WELLS UNITS 1 & 2 (331-206-TP065)	Total/NA	Drinking Water	537.1	34117
380-40536-4	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	Total/NA	Drinking Water	537.1	34117
380-40536-9	FB:MOANALUA WELLS (331-223-TP202)	Total/NA	Water	537.1	34117
380-40536-10	FB:AIEA WELLS PUMPS 1&2 (260) (331-203-TP400)	Total/NA	Water	537.1	34117

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# QC Association Summary

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

Job ID: 380-40536-1

## LCMS (Continued)

### Analysis Batch: 34181 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-40536-11	FB: HALAWA WELLS UNITS 1&2 (331-206-TP06	Total/NA	Water	537.1	34117
380-40536-12	FB:AIEA GULCH WELLS P2 (331-202-TP072)	Total/NA	Water	537.1	34117
MB 380-34117/21-A	Method Blank	Total/NA	Water	537.1	34117
LCS 380-34117/23-A	Lab Control Sample	Total/NA	Water	537.1	34117
LCSD 380-34117/24-A	Lab Control Sample Dup	Total/NA	Water	537.1	34117
MRL 380-34117/22-A	Lab Control Sample	Total/NA	Water	537.1	34117
380-40536-1 MS	MOANALUA WELLS (331-223-TP202)	Total/NA	Drinking Water	537.1	34117
380-40536-1 MSD	MOANALUA WELLS (331-223-TP202)	Total/NA	Drinking Water	537.1	34117

### Prep Batch: 34852

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-40536-1	MOANALUA WELLS (331-223-TP202)	Total/NA	Drinking Water	533	
380-40536-2	AIEA WELLS PUMPS 1&2 (260) (331-203-TP40C	Total/NA	Drinking Water	533	
380-40536-3	HALAWA WELLS UNITS 1 & 2 (331-206-TP065)	Total/NA	Drinking Water	533	
380-40536-4	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	Total/NA	Drinking Water	533	
380-40536-9	FB:MOANALUA WELLS (331-223-TP202)	Total/NA	Water	533	
380-40536-10	FB: AIEA WELLS PUMPS 1&2 (260) (331-203-TF	Total/NA	Water	533	
MBL 380-34852/21-A	Method Blank	Total/NA	Water	533	
LCS 380-34852/23-A	Lab Control Sample	Total/NA	Water	533	
LCSD 380-34852/24-A	Lab Control Sample Dup	Total/NA	Water	533	
MRL 380-34852/22-A	Lab Control Sample	Total/NA	Water	533	
380-40536-4 LMS	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	Total/NA	Drinking Water	533	
380-40536-4 LMSD	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	Total/NA	Drinking Water	533	

### Analysis Batch: 35136

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-40536-1	MOANALUA WELLS (331-223-TP202)	Total/NA	Drinking Water	533	34852
380-40536-2	AIEA WELLS PUMPS 1&2 (260) (331-203-TP40C	Total/NA	Drinking Water	533	34852
380-40536-3	HALAWA WELLS UNITS 1 & 2 (331-206-TP065)	Total/NA	Drinking Water	533	34852
380-40536-4	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	Total/NA	Drinking Water	533	34852
380-40536-9	FB:MOANALUA WELLS (331-223-TP202)	Total/NA	Water	533	34852
380-40536-10	FB: AIEA WELLS PUMPS 1&2 (260) (331-203-TF	Total/NA	Water	533	34852
MBL 380-34852/21-A	Method Blank	Total/NA	Water	533	34852
LCS 380-34852/23-A	Lab Control Sample	Total/NA	Water	533	34852
LCSD 380-34852/24-A	Lab Control Sample Dup	Total/NA	Water	533	34852
MRL 380-34852/22-A	Lab Control Sample	Total/NA	Water	533	34852
380-40536-4 LMS	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	Total/NA	Drinking Water	533	34852
380-40536-4 LMSD	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	Total/NA	Drinking Water	533	34852

### Prep Batch: 35219

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-40536-11	FB: HALAWA WELLS UNITS 1&2 (331-206-TP06	Total/NA	Water	533	
380-40536-12	FB:AIEA GULCH WELLS P2 (331-202-TP072)	Total/NA	Water	533	
MBL 380-35219/21-A	Method Blank	Total/NA	Water	533	
LCS 380-35219/23-A	Lab Control Sample	Total/NA	Water	533	
LCSD 380-35219/24-A	Lab Control Sample Dup	Total/NA	Water	533	
MRL 380-35219/22-A	Lab Control Sample	Total/NA	Water	533	
380-40727-B-1-A LMS	Matrix Spike	Total/NA	Water	533	
380-40727-B-2-A DU	Duplicate	Total/NA	Water	533	

# QC Association Summary

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

Job ID: 380-40536-1

## LCMS

### Analysis Batch: 35366

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-40536-11	FB: HALAWA WELLS UNITS 1&2 (331-206-TP06	Total/NA	Water	533	35219
380-40536-12	FB:AIEA GULCH WELLS P2 (331-202-TP072)	Total/NA	Water	533	35219
MBL 380-35219/21-A	Method Blank	Total/NA	Water	533	35219
LCS 380-35219/23-A	Lab Control Sample	Total/NA	Water	533	35219
LCSD 380-35219/24-A	Lab Control Sample Dup	Total/NA	Water	533	35219
MRL 380-35219/22-A	Lab Control Sample	Total/NA	Water	533	35219
380-40727-B-1-A LMS	Matrix Spike	Total/NA	Water	533	35219
380-40727-B-2-A DU	Duplicate	Total/NA	Water	533	35219

## Subcontract

### Analysis Batch: O-41002

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-40536-1	MOANALUA WELLS (331-223-TP202)	Total/NA	Drinking Water	625 PAH Physis LL (EAL) + TICs	O-41002_P
380-40536-2	AIEA WELLS PUMPS 1&2 (260) (331-203-TP40C	Total/NA	Drinking Water	625 PAH Physis LL (EAL) + TICs	O-41002_P
380-40536-3	HALAWA WELLS UNITS 1 & 2 (331-206-TP065)	Total/NA	Drinking Water	625 PAH Physis LL (EAL) + TICs	O-41002_P
380-40536-4	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	Total/NA	Drinking Water	625 PAH Physis LL (EAL) + TICs	O-41002_P
104592-B1	Method Blank	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-41002_P
104592-BS1	Lab Control Sample	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-41002_P
104592-BS2	Lab Control Sample Dup	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-41002_P

### Analysis Batch: 23DSC021W

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-40536-1	MOANALUA WELLS (331-223-TP202)	Total/NA	Drinking Water	8015 LL DRO/MRO/JP5/J P8	
380-40536-2	AIEA WELLS PUMPS 1&2 (260) (331-203-TP40C	Total/NA	Drinking Water	8015 LL DRO/MRO/JP5/J P8	
380-40536-3	HALAWA WELLS UNITS 1 & 2 (331-206-TP065)	Total/NA	Drinking Water	8015 LL DRO/MRO/JP5/J P8	
380-40536-4	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	Total/NA	Drinking Water	8015 LL DRO/MRO/JP5/J P8	
23DSC021WB	Method Blank	Total/NA	WATER	8015 LL DRO/MRO/JP5/J P8	
23DSC021WL	Lab Control Sample	Total/NA	WATER	8015 LL DRO/MRO/JP5/J P8	
23J5C021WL	Lab Control Sample	Total/NA	WATER	8015 LL DRO/MRO/JP5/J P8	
23J8C021WL	Lab Control Sample	Total/NA	WATER	8015 LL DRO/MRO/JP5/J P8	

# QC Association Summary

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

Job ID: 380-40536-1

## Subcontract

### Analysis Batch: 23VG39C05

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-40536-1	MOANALUA WELLS (331-223-TP202)	Total/NA	Drinking Water	8015 Gas (Purgeable) LL (EAL)	
380-40536-2	AIEA WELLS PUMPS 1&2 (260) (331-203-TP40C	Total/NA	Drinking Water	8015 Gas (Purgeable) LL (EAL)	
380-40536-3	HALAWA WELLS UNITS 1 & 2 (331-206-TP065)	Total/NA	Drinking Water	8015 Gas (Purgeable) LL (EAL)	
380-40536-4	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	Total/NA	Drinking Water	8015 Gas (Purgeable) LL (EAL)	
380-40536-5	TB:MOANALUA WELLS (331-223-TP202)	Total/NA	Water	8015 Gas (Purgeable) LL (EAL)	
380-40536-6	TB: AIEA WELLS PUMPS 1&2 (260) (331-203-TF	Total/NA	Water	8015 Gas (Purgeable) LL (EAL)	
380-40536-7	TB: HALAWA WELLS UNITS 1&2 (331-206-TP06	Total/NA	Water	8015 Gas (Purgeable) LL (EAL)	
380-40536-8	TB:AIEA GULCH WELLS P2 (331-202-TP072)	Total/NA	Water	8015 Gas (Purgeable) LL (EAL)	
23VG39C05B	Method Blank	Total/NA	WATER	8015 Gas (Purgeable) LL (EAL)	
23VG39C05L	Lab Control Sample	Total/NA	WATER	8015 Gas (Purgeable) LL (EAL)	
23C236-01M	Matrix Spike	Total/NA	WATER	8015 Gas (Purgeable) LL (EAL)	
23C236-01S	Matrix Spike Duplicate	Total/NA	WATER	8015 Gas (Purgeable) LL (EAL)	

### Prep Batch: O-41002\_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-40536-1	MOANALUA WELLS (331-223-TP202)	Total/NA	Drinking Water	EPA_625	
380-40536-2	AIEA WELLS PUMPS 1&2 (260) (331-203-TP40C	Total/NA	Drinking Water	EPA_625	
380-40536-3	HALAWA WELLS UNITS 1 & 2 (331-206-TP065)	Total/NA	Drinking Water	EPA_625	
380-40536-4	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	Total/NA	Drinking Water	EPA_625	
104592-B1	Method Blank	Total/NA	BlankMatrix	EPA_625	
104592-BS1	Lab Control Sample	Total/NA	BlankMatrix	EPA_625	
104592-BS2	Lab Control Sample Dup	Total/NA	BlankMatrix	EPA_625	

# Lab Chronicle

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

Job ID: 380-40536-1

## Client Sample ID: MOANALUA WELLS (331-223-TP202)

## Lab Sample ID: 380-40536-1

Date Collected: 03/13/23 09:51

Matrix: Drinking Water

Date Received: 03/15/23 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	525.2			33997	OTM3	EA POM	03/17/23 07:06
Total/NA	Analysis	525.2		1	34159	Q8LA	EA POM	03/20/23 16:56
Total/NA	Prep	533			34852	J9ZD	EA POM	03/26/23 17:30
Total/NA	Analysis	533		1	35136	UKYM	EA POM	03/30/23 17:28
Total/NA	Prep	537.1 DW			34117	EE6W	EA POM	03/19/23 18:20
Total/NA	Analysis	537.1		1	34181	UKYM	EA POM	03/21/23 06:33
Total/NA	Prep	EPA_625		1	O-41002_P			03/17/23 00:00
Total/NA	Analysis	625 PAH Physis LL (EAL) + TICs		1	O-41002	YC		03/31/23 04:12
Total/NA	Analysis	8015 Gas (Purgeable) LL (EAL)		1	23VG39C05	SCerva		03/17/23 15:37
Total/NA	Analysis	8015 LL DRO/MRO/JP5/JP8		1	23DSC021W	SDees		03/20/23 18:56

## Client Sample ID: AIEA WELLS PUMPS 1&2 (260) (331-203-TP400)

## Lab Sample ID: 380-40536-2

Date Collected: 03/13/23 10:47

Matrix: Drinking Water

Date Received: 03/15/23 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	525.2			33997	OTM3	EA POM	03/17/23 07:06
Total/NA	Analysis	525.2		1	34159	Q8LA	EA POM	03/20/23 17:16
Total/NA	Prep	533			34852	J9ZD	EA POM	03/26/23 17:30
Total/NA	Analysis	533		1	35136	UKYM	EA POM	03/30/23 17:39
Total/NA	Prep	537.1 DW			34117	EE6W	EA POM	03/19/23 18:20
Total/NA	Analysis	537.1		1	34181	UKYM	EA POM	03/21/23 09:09
Total/NA	Prep	EPA_625		1	O-41002_P			03/17/23 00:00
Total/NA	Analysis	625 PAH Physis LL (EAL) + TICs		1	O-41002	YC		03/31/23 05:56
Total/NA	Analysis	8015 Gas (Purgeable) LL (EAL)		1	23VG39C05	SCerva		03/17/23 18:02
Total/NA	Analysis	8015 LL DRO/MRO/JP5/JP8		1	23DSC021W	SDees		03/20/23 19:15

## Client Sample ID: HALAWA WELLS UNITS 1 & 2 (331-206-TP065)

## Lab Sample ID: 380-40536-3

Date Collected: 03/13/23 10:23

Matrix: Drinking Water

Date Received: 03/15/23 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	525.2			33997	OTM3	EA POM	03/17/23 07:06
Total/NA	Analysis	525.2		1	34159	Q8LA	EA POM	03/20/23 17:36
Total/NA	Prep	533			34852	J9ZD	EA POM	03/26/23 17:30
Total/NA	Analysis	533		1	35136	UKYM	EA POM	03/30/23 17:49
Total/NA	Prep	537.1 DW			34117	EE6W	EA POM	03/19/23 18:20
Total/NA	Analysis	537.1		1	34181	UKYM	EA POM	03/21/23 09:18

# Lab Chronicle

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

Job ID: 380-40536-1

**Client Sample ID: HALAWA WELLS UNITS 1 & 2  
(331-206-TP065)**

**Lab Sample ID: 380-40536-3**

**Date Collected: 03/13/23 10:23**

**Matrix: Drinking Water**

**Date Received: 03/15/23 09:50**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	EPA_625		1	O-41002_P			03/17/23 00:00
Total/NA	Analysis	625 PAH Physis LL (EAL) + TICs		1	O-41002	YC		03/31/23 07:40
Total/NA	Analysis	8015 Gas (Purgeable) LL (EAL)		1	23VG39C05	SCerva		03/17/23 19:13
Total/NA	Analysis	8015 LL DRO/MRO/JP5/JP8		1	23DSC021W	SDees		03/20/23 19:52

**Client Sample ID: AIEA GULCH WELLS PUMP 2  
(331-202-TP072)**

**Lab Sample ID: 380-40536-4**

**Date Collected: 03/13/23 11:18**

**Matrix: Drinking Water**

**Date Received: 03/15/23 09:50**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	525.2			33997	OTM3	EA POM	03/17/23 07:06
Total/NA	Analysis	525.2		1	34159	Q8LA	EA POM	03/20/23 17:56
Total/NA	Prep	533			34852	J9ZD	EA POM	03/26/23 17:30
Total/NA	Analysis	533		1	35136	UKYM	EA POM	03/30/23 15:22
Total/NA	Prep	537.1 DW			34117	EE6W	EA POM	03/19/23 18:20
Total/NA	Analysis	537.1		1	34181	UKYM	EA POM	03/21/23 09:28
Total/NA	Prep	EPA_625		1	O-41002_P			03/17/23 00:00
Total/NA	Analysis	625 PAH Physis LL (EAL) + TICs		1	O-41002	YC		03/31/23 09:25
Total/NA	Analysis	8015 Gas (Purgeable) LL (EAL)		1	23VG39C05	SCerva		03/17/23 18:38
Total/NA	Analysis	8015 LL DRO/MRO/JP5/JP8		1	23DSC021W	SDees		03/20/23 19:33

**Client Sample ID: TB:MOANALUA WELLS (331-223-TP202)**

**Lab Sample ID: 380-40536-5**

**Date Collected: 03/13/23 09:51**

**Matrix: Water**

**Date Received: 03/15/23 09:50**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015 Gas (Purgeable) LL (EAL)		1	23VG39C05	SCerva		03/17/23 19:50

**Client Sample ID: TB: AIEA WELLS PUMPS 1&2 (260)  
(331-203-TP400)**

**Lab Sample ID: 380-40536-6**

**Date Collected: 03/13/23 10:47**

**Matrix: Water**

**Date Received: 03/15/23 09:50**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015 Gas (Purgeable) LL (EAL)		1	23VG39C05	SCerva		03/17/23 20:26

# Lab Chronicle

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

Job ID: 380-40536-1

**Client Sample ID: TB: HALAWA WELLS UNITS 1&2  
(331-206-TP065)**

**Lab Sample ID: 380-40536-7**

Date Collected: 03/13/23 10:23

Matrix: Water

Date Received: 03/15/23 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015 Gas (Purgeable) LL (EAL)		1	23VG39C05	SCerva		03/17/23 21:02

**Client Sample ID: TB:AIEA GULCH WELLS P2 (331-202-TP072)**

**Lab Sample ID: 380-40536-8**

Date Collected: 03/13/23 11:18

Matrix: Water

Date Received: 03/15/23 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015 Gas (Purgeable) LL (EAL)		1	23VG39C05	SCerva		03/17/23 21:38

**Client Sample ID: FB:MOANALUA WELLS (331-223-TP202)**

**Lab Sample ID: 380-40536-9**

Date Collected: 03/13/23 09:51

Matrix: Water

Date Received: 03/15/23 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			34852	J9ZD	EA POM	03/26/23 17:30
Total/NA	Analysis	533		1	35136	UKYM	EA POM	03/30/23 17:58
Total/NA	Prep	537.1 DW			34117	EE6W	EA POM	03/19/23 18:20
Total/NA	Analysis	537.1		1	34181	UKYM	EA POM	03/21/23 09:37

**Client Sample ID: FB: AIEA WELLS PUMPS 1&2 (260)  
(331-203-TP400)**

**Lab Sample ID: 380-40536-10**

Date Collected: 03/13/23 10:47

Matrix: Water

Date Received: 03/15/23 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			34852	J9ZD	EA POM	03/26/23 17:30
Total/NA	Analysis	533		1	35136	UKYM	EA POM	03/30/23 18:08
Total/NA	Prep	537.1 DW			34117	EE6W	EA POM	03/19/23 18:20
Total/NA	Analysis	537.1		1	34181	UKYM	EA POM	03/21/23 09:47

**Client Sample ID: FB: HALAWA WELLS UNITS 1&2  
(331-206-TP065)**

**Lab Sample ID: 380-40536-11**

Date Collected: 03/13/23 10:23

Matrix: Water

Date Received: 03/15/23 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			35219	P8ZX	EA POM	03/30/23 12:35
Total/NA	Analysis	533		1	35366	UKYM	EA POM	04/01/23 13:51
Total/NA	Prep	537.1 DW			34117	EE6W	EA POM	03/19/23 18:20
Total/NA	Analysis	537.1		1	34181	UKYM	EA POM	03/21/23 09:57

# Lab Chronicle

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

Job ID: 380-40536-1

**Client Sample ID: FB:AIEA GULCH WELLS P2 (331-202-TP072)**

**Lab Sample ID: 380-40536-12**

**Date Collected: 03/13/23 11:18**

**Matrix: Water**

**Date Received: 03/15/23 09:50**

<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	533			35219	P8ZX	EA POM	03/30/23 12:35
Total/NA	Analysis	533		1	35366	UKYM	EA POM	04/01/23 14:01
Total/NA	Prep	537.1 DW			34117	EE6W	EA POM	03/19/23 18:20
Total/NA	Analysis	537.1		1	34181	UKYM	EA POM	03/21/23 10:06

### 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



# Accreditation/Certification Summary

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

Job ID: 380-40536-1

## 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	02-29-24

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	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	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	Caffeine
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	Diazinon (Qualitative)
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	Dimethoate
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

# Accreditation/Certification Summary

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

Job ID: 380-40536-1

## Laboratory: Eurofins Eaton Analytical Pomona (Continued)

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

Authority	Program	Identification Number	Expiration Date
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
525.2	525.2	Drinking Water	Isophorone
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-Chloroeicosafuoro-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-Chloroeicosafuoro-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)

# Accreditation/Certification Summary

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

Job ID: 380-40536-1

## 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	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)
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)

# Method Summary

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

Job ID: 380-40536-1

Method	Method Description	Protocol	Laboratory
525.2	Semivolatile Organic Compounds (GC/MS)	EPA	EA POM
533	Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water	EPA	EA POM
537.1	Perfluorinated Alkyl Acids (LC/MS)	EPA	EA POM
625	EPA 625 Base/Neutral and Acid Organics i	EPA	
8015	8015 - TPH DRO/ORO	EPA	
8015B	SW846 8015B Gasoline Range Organics	SW846	
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

# Sample Summary

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

Job ID: 380-40536-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	PWSID Number
380-40536-1	MOANALUA WELLS (331-223-TP202)	Drinking Water	03/13/23 09:51	03/15/23 09:50	HI0000331
380-40536-2	AIEA WELLS PUMPS 1&2 (260) (331-203-TP400)	Drinking Water	03/13/23 10:47	03/15/23 09:50	HI0000331
380-40536-3	HALAWA WELLS UNITS 1 & 2 (331-206-TP065)	Drinking Water	03/13/23 10:23	03/15/23 09:50	HI0000331
380-40536-4	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	Drinking Water	03/13/23 11:18	03/15/23 09:50	HI0000331
380-40536-5	TB:MOANALUA WELLS (331-223-TP202)	Water	03/13/23 09:51	03/15/23 09:50	
380-40536-6	TB: AIEA WELLS PUMPS 1&2 (260) (331-203-TP400)	Water	03/13/23 10:47	03/15/23 09:50	
380-40536-7	TB: HALAWA WELLS UNITS 1&2 (331-206-TP065)	Water	03/13/23 10:23	03/15/23 09:50	
380-40536-8	TB:AIEA GULCH WELLS P2 (331-202-TP072)	Water	03/13/23 11:18	03/15/23 09:50	
380-40536-9	FB:MOANALUA WELLS (331-223-TP202)	Water	03/13/23 09:51	03/15/23 09:50	
380-40536-10	FB: AIEA WELLS PUMPS 1&2 (260) (331-203-TP400)	Water	03/13/23 10:47	03/15/23 09:50	
380-40536-11	FB: HALAWA WELLS UNITS 1&2 (331-206-TP065)	Water	03/13/23 10:23	03/15/23 09:50	
380-40536-12	FB:AIEA GULCH WELLS P2 (331-202-TP072)	Water	03/13/23 11:18	03/15/23 09:50	





3051 Fujita Street  
 Torrance, CA 90505  
 Tel: (310)-618-8889

Date: 04-11-2023  
 EMAX Batch No.: 23C236

Attn: Jackie Contreras

Eurofins Eaton Analytical  
 750 Royal Oaks Dr., Suite 100  
 Monrovia, CA 91016-3629

Subject: Laboratory Report  
 Project: 380-40536

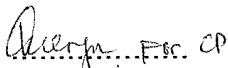
Enclosed is the Laboratory report for samples received on 03/17/23.  
 The data reported relate only to samples listed below :

Sample ID	Control #	Col Date	Matrix	Analysis
380-40536-1	C236-01	03/13/23	WATER	TPH GASOLINE TPH
380-40536-2	C236-02	03/13/23	WATER	TPH GASOLINE TPH
380-40536-3	C236-04	03/13/23	WATER	TPH GASOLINE TPH
380-40536-4	C236-03	03/13/23	WATER	TPH GASOLINE TPH
380-40536-5	C236-05	03/13/23	WATER	TPH GASOLINE
380-40536-6	C236-06	03/13/23	WATER	TPH GASOLINE
380-40536-7	C236-07	03/13/23	WATER	TPH GASOLINE
380-40536-8	C236-08	03/13/23	WATER	TPH GASOLINE
380-40536-1MS	C236-01M	03/13/23	WATER	TPH GASOLINE
380-40536-1MSD	C236-01S	03/13/23	WATER	TPH GASOLINE

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

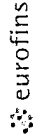
  
 Caspar J. Pang  
 Laboratory Director

This report is confidential and intended solely for the use of the individual or entity to whom it is addressed. This report shall not be reproduced except in full or without the written approval of EMAX.

EMAX certifies that results included in this report meets all TNI & DOD requirements unless noted in the Case Narrative.

NELAP Accredited Certificate Number CA002912022-24  
 ANAB Accredited DoD ELAP and ISO/IEC 17025 Certificate Number L2278 Testing  
 California ELAP Accredited Certificate Number 2672

**Chain of Custody Record**



Environment Testing



1361236

<b>Client Information (Sub Contract Lab)</b>		Sampler: Lab PM: Arada, Rachelle	Carrier Tracking No(s): 380-42642.1
Client Contact: Rachelle Arada@st.eurofins.com		Phone: Rachelle Arada@st.eurofins.com	State of Origin: Hawaii
Company: EMAX Laboratories Inc		Accreditations Required (See note): State - Hawaii	Job #: 380-40536-1
Address: 3051 Fujita Street, Torrance, CA, 90505		Due Date Requested: 3/29/2023	Preservation Codes: M - Hexane N - None O - ASN02 P - Na2O4S Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4.5 Y - Trizina Z - other (specify) Other:
PO #: _____		TAT Requested (days): _____	
WO #: _____		Analysis Requested	
Project #: 38001111		Total Number of containers	
Site: Honolulu BWS Sites		6	
Sample Identification - Client ID (Lab ID)		Special Instructions/Note:	
MOANALUA WELLS (331-223-TP202) (380-40536-1)	Sample Date: 3/13/23	Sample Time: 09:51 Hawaiian	See Attached Instructions
AIEA WELLS PUMPS 1&2 (260) (331-203-TP400) (380-40536-2)	Sample Date: 3/13/23	Sample Time: 10:47 Hawaiian	See Attached Instructions
HALAWA WELLS UNITS 1 & 2 (331-206-TP065) (380-40536-3)	Sample Date: 3/13/23	Sample Time: 10:23 Hawaiian	See Attached Instructions
AIEA GULCH WELLS PUMP 2 (331-202-TP072) (380-40536-4)	Sample Date: 3/13/23	Sample Time: 11:18 Hawaiian	See Attached Instructions
TB:MOANALUA WELLS (331-223-TP202) (380-40536-5)	Sample Date: 3/13/23	Sample Time: 09:51 Hawaiian	See Attached Instructions
TB: AIEA WELLS PUMPS 1&2 (260) (331-203-TP400) (380-40536-6)	Sample Date: 3/13/23	Sample Time: 10:47 Hawaiian	See Attached Instructions
TB: HALAWA WELLS UNITS 1&2 (331-206-TP065) (380-40536-7)	Sample Date: 3/13/23	Sample Time: 10:23 Hawaiian	See Attached Instructions
TB:AIEA GULCH WELLS P2 (331-202-TP072) (380-40536-8)	Sample Date: 3/13/23	Sample Time: 11:18 Hawaiian	See Attached Instructions
<p><b>Possible Hazard Identification</b>          Unconfirmed          Deliverable Requested: I, II, III, IV, Other (specify) _____          Primary Deliverable Rank: 2</p>			
<p><b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b>  <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months</p>			
<p><b>Special Instructions/QC Requirements:</b></p>			
Empty Kit Relinquished by: _____		Method of Shipment: _____	
Relinquished by: _____		Date/Time: 3/13/23 11:08	
Relinquished by: _____		Date/Time: _____	
Relinquished by: _____		Date/Time: _____	
Custody Seals Intact: _____		Cooler Temperature(s) °C and Other Remarks: _____	
Custody Seal No.: _____		Ver: 06/08/2021	

2-8/2-6 CF = -0.2



Type of Delivery	Airbill / Tracking Number	ECN <u>23C236</u>
<input type="checkbox"/> Fedex <input type="checkbox"/> UPS <input checked="" type="checkbox"/> GSO <input type="checkbox"/> Others		Recipient <u>Cecilia Chavez</u>
<input type="checkbox"/> EMAX Courier <input checked="" type="checkbox"/> Client Delivery		Date <u>03/17/23</u> Time <u>1108</u>

**COC INSPECTION**

<input checked="" type="checkbox"/> Client Name	<input checked="" type="checkbox"/> Client PM/FC	<input type="checkbox"/> Sampler Name	<input checked="" type="checkbox"/> Sampling Date/Time	<input checked="" type="checkbox"/> Sample ID	<input checked="" type="checkbox"/> Matrix
<input type="checkbox"/> Address	<input type="checkbox"/> Tel # / Fax #	<input type="checkbox"/> Courier Signature	<input checked="" type="checkbox"/> Analysis Required	<input type="checkbox"/> Preservative (if any)	<input type="checkbox"/> TAT
Safety Issues (if any)	<input type="checkbox"/> High concentrations expected	<input type="checkbox"/> From Superfund Site	<input type="checkbox"/> Rad screening required		

Note: \_\_\_\_\_

**PACKAGING INSPECTION**

Container	<input checked="" type="checkbox"/> Cooler	<input type="checkbox"/> Box	<input type="checkbox"/> Other
Condition <u>correction</u>	<input type="checkbox"/> Custody Seal	<input type="checkbox"/> Intact	<input type="checkbox"/> Damaged
Packaging <u>factor: -0.2</u>	<input checked="" type="checkbox"/> Bubble Pack	<input type="checkbox"/> Styrofoam	<input type="checkbox"/> Popcorn
Temperatures	<input checked="" type="checkbox"/> Cooler <u>12.8/2.6</u> °C	<input type="checkbox"/> Cooler 2 _____ °C	<input type="checkbox"/> Cooler 3 _____ °C
(Cool, ≤6 °C but not frozen)	<input type="checkbox"/> Cooler 6 _____ °C	<input type="checkbox"/> Cooler 7 _____ °C	<input type="checkbox"/> Cooler 8 _____ °C
Thermometer:	<u>A - S/N 221052760</u>	<u>B - S/N 210760237</u>	<u>C - S/N _____</u>
		<u>D - S/N _____</u>	<u>D - S/N _____</u>

Comments:  Temperature is out of range. PM was informed IMMEDIATELY.

Note: \_\_\_\_\_

**DISCREPANCIES**

LabSampleID	LabSampleContainerID	Code	ClientSample Label ID / Information	Corrective Action
<u>4</u>	<u>19-24</u>	<u>01</u>	<u>label reads: 10:22</u>	<u>R1</u>
<i>(Large handwritten 'Z' mark across the table)</i>				
			<u>20/12/23</u>	<u>AB 3/17/23</u>

pH holding time requirement for water samples is 15 mins. Water samples for pH analysis are received beyond 15 minutes from sampling time.

**NOTES/OBSERVATIONS:**

SAMPLE MATRIX IS DRINKING WATER?  YES  NO

- LEGEND:**
- |   |   |  |
|---|---|--|
| <p><b>Code Description- Sample Management</b></p> <p>D1 Analysis is not indicated in _____</p> <p>D2 Analysis mismatch COC vs label</p> <p>D3 Sample ID mismatch COC vs label</p> <p>D4 Sample ID is not indicated in _____</p> <p>D5 Container -[improper] [leaking] [broken]</p> <p>D6 Date/Time is not indicated in _____</p> <p><u>D7 Date/Time mismatch COC vs label</u></p> <p>D8 Sample listed in COC is not received</p> <p>D9 Sample received is not listed in COC</p> <p>D10 No initial/date on corrections in COC/label</p> <p>D11 Container count mismatch COC vs received</p> <p>D12 Container size mismatch COC vs received</p> | <p><b>Code Description-Sample Management</b></p> <p>D13 Out of Holding Time</p> <p>D14 Bubble is &gt;6mm</p> <p>D15 No trip blank in cooler</p> <p>D16 Preservation not indicated in _____</p> <p>D17 Preservation mismatch COC vs label</p> <p>D18 Insufficient chemical preservative</p> <p>D19 Insufficient Sample</p> <p>D20 No filtration info for dissolved analysis</p> <p>D21 No sample for moisture determination</p> <p>D22 _____</p> <p>D23 _____</p> <p>D24 _____</p> | <p><input type="checkbox"/> Continue to next page.</p> <p><b>Code Description-Sample Management</b></p> <p>R1 Proceed as indicated in <input checked="" type="checkbox"/> COC <input type="checkbox"/> Label</p> <p>R2 Refer to attached instruction</p> <p>R3 Cancel the analysis</p> <p>R4 Use vial with smallest bubble first</p> <p>R5 Log-in with latest sampling date and time+1 min</p> <p>R6 Adjust pH as necessary</p> <p>R7 Filter and preserved as necessary</p> <p>R8 _____</p> <p>R9 _____</p> <p>R10 _____</p> <p>R11 _____</p> <p>R12 _____</p> |
|---|---|--|

**REVIEWS:**

Sample Labeling Nacana Peyter SRF Cecilia  
 Date 03/17/23 Date 3/17/23

REPORT ID: 23C236

PM AB  
 Date 3/17/23



## REPORTING CONVENTIONS

### DATA QUALIFIERS:

Lab Qualifier	AFCEE Qualifier	Description
J	F	Indicates that the analyte is positively identified and the result is less than RL but greater than MDL.
N		Indicates presumptive evidence of a compound.
B	B	Indicates that the analyte is found in the associated method blank as well as in the sample at above QC level.
E	J	Indicates that the result is above the maximum calibration range or estimated value.
*	*	Out of QC limit.

Note: The above qualifiers are used to flag the results unless the project requires a different set of qualification criteria.

### ACRONYMS AND ABBREVIATIONS:

CRDL	Contract Required Detection Limit
RL	Reporting Limit
MRL	Method Reporting Limit
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
DO	Diluted out

### DATES

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.

LABORATORY REPORT FOR

EUROFINS EATON ANALYTICAL

380-40536

METHOD 5030B/8015B  
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

SDG#: 23C236



CASE NARRATIVE

Client : EUROFINS EATON ANALYTICAL

Project: 380-40536

SDG : 23C236

METHOD 5030B/8015B  
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

A total of eight(8) water samples were received on 03/17/23 to be analyzed for Total Petroleum Hydrocarbons by Purge and Trap in accordance with Method 5030B/8015B and project specific requirements.

Holding Time

Samples were analyzed within the prescribed holding time.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source (ICV). Continuing calibration (CCV) verifications were carried out on a frequency specified by the project. All calibration requirements were within acceptance criteria. Refer to calibration summary forms of ICAL, ICV and CCV for details. MRL was analyzed as required by the project. Refer to MRL summary form for details.

Method Blank

Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. VG39C05B - result was compliant to project requirement. Refer to sample result summary form for details.

Lab Control Sample

Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. VG39C05L/VG39C05C were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample

Matrix spike sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of MS/MSD was analyzed. Gasoline was within MS QC limits in C236-01M/C236-01S. Refer to Matrix QC summary form for details.

Surrogate

Surrogate was added on QC and field samples. All surrogate recoveries were within QC limits. Refer to sample result summary forms for details.

Sample Analysis

Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

LAB CHRONICLE  
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

SDG NO. : 23C236  
Instrument ID : GCT039

Client : EUROFINS EATON ANALYTICAL  
Project : 380-40536

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	WATER		Extraction Date/Time	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
				Analysis Date/Time						
MBLK1W	VG39C05B	1	NA	03/17/2312:01	03/17/2312:01	EC17004A	EC17003A	23VG39C05	Method Blank	
LCS1W	VG39C05L	1	NA	03/17/2312:37	03/17/2312:37	EC17005A	EC17003A	23VG39C05	Lab Control Sample (LCS)	
LCD1W	VG39C05C	1	NA	03/17/2313:13	03/17/2313:13	EC17006A	EC17003A	23VG39C05	LCS Duplicate	
380-40536-1	C236-01	1	NA	03/17/2315:37	03/17/2315:37	EC17010A	EC17003A	23VG39C05	Field Sample	
380-40536-1MS	C236-01M	1	NA	03/17/2316:14	03/17/2316:14	EC17011A	EC17003A	23VG39C05	Matrix Spike Sample (MS)	
380-40536-1MSD	C236-01S	1	NA	03/17/2316:50	03/17/2316:50	EC17012A	EC17003A	23VG39C05	MS Duplicate (MSD)	
380-40536-2	C236-02	1	NA	03/17/2318:02	03/17/2318:02	EC17014A	EC17013A	23VG39C05	Field Sample	
380-40536-4	C236-03	1	NA	03/17/2318:38	03/17/2318:38	EC17015A	EC17013A	23VG39C05	Field Sample	
380-40536-3	C236-04	1	NA	03/17/2319:13	03/17/2319:13	EC17016A	EC17013A	23VG39C05	Field Sample	
380-40536-5	C236-05	1	NA	03/17/2319:50	03/17/2319:50	EC17017A	EC17013A	23VG39C05	Field Sample	
380-40536-6	C236-06	1	NA	03/17/2320:26	03/17/2320:26	EC17018A	EC17013A	23VG39C05	Field Sample	
380-40536-7	C236-07	1	NA	03/17/2321:02	03/17/2321:02	EC17019A	EC17013A	23VG39C05	Field Sample	
380-40536-8	C236-08	1	NA	03/17/2321:38	03/17/2321:38	EC17020A	EC17013A	23VG39C05	Field Sample	

FN - Filename  
% Moist - Percent Moisture



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# SAMPLE RESULTS

METHOD 5030B/8015B  
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: EUROFINS EATON ANALYTICAL	Date Collected:	03/13/23 09:51
Project	: 380-40536	Date Received:	03/17/23
Batch No.	: 23C236	Date Extracted:	03/17/23 15:37
Sample ID	: 380-40536-1	Date Analyzed:	03/17/23 15:37
Lab Samp ID:	C236-01	Dilution Factor:	1
Lab File ID:	EC17010A	Matrix:	WATER
Ext Btch ID:	23VG39C05	% Moisture:	NA
Calib. Ref.:	EC17003A	Instrument ID:	39

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	0.020	0.010

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromofluorobenzene	0.0355	0.0400	89	60-140

Notes:

Parameter H-C Range  
Gasoline C6-C10

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

Sample Amount : 5ml Final Volume : 5ml  
Prepared by : SCerva Analyzed by : SCerva

METHOD 5030B/8015B  
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: EUROFINS EATON ANALYTICAL	Date Collected:	03/13/23 10:47
Project	: 380-40536	Date Received:	03/17/23
Batch No.	: 23C236	Date Extracted:	03/17/23 18:02
Sample ID	: 380-40536-2	Date Analyzed:	03/17/23 18:02
Lab Samp ID:	C236-02	Dilution Factor:	1
Lab File ID:	EC17014A	Matrix:	WATER
Ext Btch ID:	23VG39C05	% Moisture:	NA
Calib. Ref.:	EC17013A	Instrument ID:	39

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	0.020	0.010

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromofluorobenzene	0.0355	0.0400	89	60-140

Notes:

Parameter H-C Range  
Gasoline C6-C10

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

Sample Amount : 5ml Final Volume : 5ml  
Prepared by : SCerva Analyzed by : SCerva

METHOD 5030B/8015B  
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client : EUROFINS EATON ANALYTICAL	Date Collected: 03/13/23 11:18
Project : 380-40536	Date Received: 03/17/23
Batch No. : 23C236	Date Extracted: 03/17/23 18:38
Sample ID : 380-40536-4	Date Analyzed: 03/17/23 18:38
Lab Samp ID: C236-03	Dilution Factor: 1
Lab File ID: EC17015A	Matrix: WATER
Ext Btch ID: 23VG39C05	% Moisture: NA
Calib. Ref.: EC17013A	Instrument ID: 39

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	0.020	0.010

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromofluorobenzene	0.0348	0.0400	87	60-140

Notes:

Parameter      H-C Range  
Gasoline        C6-C10

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

Sample Amount : 5ml	Final Volume : 5ml
Prepared by : SCerva	Analyzed by : SCerva



METHOD 5030B/8015B  
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: EUROFINS EATON ANALYTICAL	Date Collected:	03/13/23 10:23
Project	: 380-40536	Date Received:	03/17/23
Batch No.	: 23C236	Date Extracted:	03/17/23 19:13
Sample ID	: 380-40536-3	Date Analyzed:	03/17/23 19:13
Lab Samp ID:	C236-04	Dilution Factor:	1
Lab File ID:	EC17016A	Matrix:	WATER
Ext Btch ID:	23VG39C05	% Moisture:	NA
Calib. Ref.:	EC17013A	Instrument ID:	39

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	0.020	0.010

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromofluorobenzene	0.0345	0.0400	86	60-140

Notes:

Parameter H-C Range  
Gasoline C6-C10

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

Sample Amount : 5ml Final Volume : 5ml  
Prepared by : SCerva Analyzed by : SCerva

METHOD 5030B/8015B  
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client : EUROFINS EATON ANALYTICAL	Date Collected: 03/13/23 09:51
Project : 380-40536	Date Received: 03/17/23
Batch No. : 23C236	Date Extracted: 03/17/23 19:50
Sample ID : 380-40536-5	Date Analyzed: 03/17/23 19:50
Lab Samp ID: C236-05	Dilution Factor: 1
Lab File ID: EC17017A	Matrix: WATER
Ext Btch ID: 23VG39C05	% Moisture: NA
Calib. Ref.: EC17013A	Instrument ID: 39

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
----- GASOLINE	ND	0.020	0.010

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
----- Bromofluorobenzene	0.0344	0.0400	86	60-140

Notes:

Parameter      H-C Range  
Gasoline        C6-C10

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

Sample Amount : 5ml	Final Volume : 5ml
Prepared by : SCerva	Analyzed by : SCerva

METHOD 5030B/8015B  
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client : EUROFINS EATON ANALYTICAL	Date Collected: 03/13/23 10:47
Project : 380-40536	Date Received: 03/17/23
Batch No. : 23C236	Date Extracted: 03/17/23 20:26
Sample ID : 380-40536-6	Date Analyzed: 03/17/23 20:26
Lab Samp ID: C236-06	Dilution Factor: 1
Lab File ID: EC17018A	Matrix: WATER
Ext Btch ID: 23VG39C05	% Moisture: NA
Calib. Ref.: EC17013A	Instrument ID: 39

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	0.020	0.010

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromofluorobenzene	0.0337	0.0400	84	60-140

Notes:

Parameter      H-C Range  
Gasoline        C6-C10

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

Sample Amount : 5ml	Final Volume : 5ml
Prepared by : SCerva	Analyzed by : SCerva

METHOD 5030B/8015B  
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client : EUROFINS EATON ANALYTICAL Date Collected: 03/13/23 10:23  
Project : 380-40536 Date Received: 03/17/23  
Batch No. : 23C236 Date Extracted: 03/17/23 21:02  
Sample ID : 380-40536-7 Date Analyzed: 03/17/23 21:02  
Lab Samp ID: C236-07 Dilution Factor: 1  
Lab File ID: EC17019A Matrix: WATER  
Ext Btch ID: 23VG39C05 % Moisture: NA  
Calib. Ref.: EC17013A Instrument ID: 39

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)	
-----	-----	-----	-----	
GASOLINE	ND	0.020	0.010	
SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
-----	-----	-----	-----	-----
Bromofluorobenzene	0.0377	0.0400	94	60-140

Notes:

Parameter H-C Range  
Gasoline C6-C10

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

Sample Amount : 5ml Final Volume : 5ml  
Prepared by : SCerva Analyzed by : SCerva

METHOD 5030B/8015B  
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: EUROFINS EATON ANALYTICAL	Date Collected:	03/13/23 11:18
Project	: 380-40536	Date Received:	03/17/23
Batch No.	: 23C236	Date Extracted:	03/17/23 21:38
Sample ID	: 380-40536-8	Date Analyzed:	03/17/23 21:38
Lab Samp ID:	C236-08	Dilution Factor:	1
Lab File ID:	EC17020A	Matrix:	WATER
Ext Btch ID:	23VG39C05	% Moisture:	NA
Calib. Ref.:	EC17013A	Instrument ID:	39

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	0.020	0.010

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromofluorobenzene	0.0347	0.0400	87	60-140

Notes:

Parameter H-C Range  
Gasoline C6-C10

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

Sample Amount : 5ml Final Volume : 5ml  
Prepared by : SCerva Analyzed by : SCerva

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# QC SUMMARIES

METHOD 5030B/8015B  
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: EUROFINS EATON ANALYTICAL	Date Collected: 03/17/23 12:01
Project	: 380-40536	Date Received: 03/17/23
Batch No.	: 23C236	Date Extracted: 03/17/23 12:01
Sample ID	: MBLK1W	Date Analyzed: 03/17/23 12:01
Lab Samp ID:	VG39C05B	Dilution Factor: 1
Lab File ID:	EC17004A	Matrix: WATER
Ext Btch ID:	23VG39C05	% Moisture: NA
Calib. Ref.:	EC17003A	Instrument ID: 39

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)	
GASOLINE	ND	0.020	0.010	
SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromofluorobenzene	0.0357	0.0400	89	60-140

Notes:

Parameter      H-C Range  
Gasoline        C6-C10  
Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

Sample Amount : 5ml	Final Volume : 5ml
Prepared by : SCerva	Analyzed by : SCerva

EMAX QUALITY CONTROL DATA  
LAB CONTROL SAMPLE ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL  
PROJECT : 380-40536  
BATCH NO. : 23C236  
METHOD : 5030B/8015B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR:	1	1	1
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: VG39C05B	VG39C05L	VG39C05C
LAB FILE ID	: EC17004A	EC17005A	EC17006A
DATE PREPARED	: 03/17/23 12:01	03/17/23 12:37	03/17/23 13:13
DATE ANALYZED	: 03/17/23 12:01	03/17/23 12:37	03/17/23 13:13
PREP BATCH	: 23VG39C05	23VG39C05	23VG39C05
CALIBRATION REF:	EC17003A	EC17003A	EC17003A

ACCESSION:

PARAMETERS	MBResult (mg/L)	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Gasoline	ND	0.500	0.461	92	0.500	0.465	93	1	60-130	30

SURROGATE PARAMETER	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	QCLimit (%)
Bromofluorobenzene	0.0400	0.0458	115	0.0400	0.0453	113	70-130

MB: Method Blank sample LCS: Lab Control Sample LCD: Lab Control Sample Duplicate



EMAX QUALITY CONTROL DATA  
MS/MSD ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL  
PROJECT : 380-40536  
BATCH NO. : 23C236  
METHOD : 5030B/8015B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR:	1	1	1
SAMPLE ID	: 380-40536-1	380-40536-1MS	380-40536-1MSD
LAB SAMPLE ID	: C236-01	C236-01M	C236-01S
LAB FILE ID	: EC17010A	EC17011A	EC17012A
DATE PREPARED	: 03/17/23 15:37	03/17/23 16:14	03/17/23 16:50
DATE ANALYZED	: 03/17/23 15:37	03/17/23 16:14	03/17/23 16:50
PREP BATCH	: 23VG39C05	23VG39C05	23VG39C05
CALIBRATION REF:	EC17003A	EC17003A	EC17003A

ACCESSION:

PARAMETERS	PSResult (mg/L)	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Gasoline	ND	0.500	0.470	94	0.500	0.462	92	2	50-130	30

SURROGATE PARAMETER	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	QCLimit (%)
Bromofluorobenzene	0.0400	0.0456	114	0.0400	0.0463	116	60-140

PS: Parent Sample MS; Matrix Spike MSD; Matrix Spike Duplicate

LABORATORY REPORT FOR

EUROFINS EATON ANALYTICAL

380-40536

METHOD 3520C/8015B  
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

SDG#: 23C236



CASE NARRATIVE

Client : EUROFINS EATON ANALYTICAL

Project: 380-40536

SDG : 23C236

METHOD 3520C/8015B  
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

A total of four(4) water samples were received on 03/17/23 to be analyzed for Total Petroleum Hydrocarbons by Extraction in accordance with Method 3520C/8015B and project specific requirements.

Holding Time

Samples were analyzed within the prescribed holding time.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source (ICV). Continuing calibration (CCV) verifications were carried out on a frequency specified by the project. All calibration requirements were within acceptance criteria. Refer to calibration summary forms of ICAL, ICV and CCV for details. MRL was analyzed as required by the project. Refer to MRL summary form for details.

Method Blank

Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. DSC021WB - result was compliant to project requirement. Refer to sample result summary form for details.

Lab Control Sample

Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. DSC021WL/DSC021WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample

No matrix QC sample was provided on this SDG.

Surrogate

Surrogates were added on QC and field samples. All surrogate recoveries were within QC limits. Refer to sample result summary forms for details.

Sample Analysis

Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

CASE NARRATIVE

Client : EUROFINS EATON ANALYTICAL

Project: 380-40536

SDG : 23C236

METHOD 3520C/8015B  
PETROLEUM HYDROCARBONS BY EXTRACTION

A total of four(4) water samples were received on 03/17/23 to be analyzed for Petroleum Hydrocarbons by Extraction in accordance with Method 3520C/8015B and project specific requirements.

Holding Time

Samples were analyzed within the prescribed holding time.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source (ICV). Continuing calibration (CCV) verifications were carried out on a frequency specified by the project. All calibration requirements were within acceptance criteria. Refer to calibration summary forms of ICAL, ICV and CCV for details. MRL was analyzed as required by the project. Refer to MRL summary form for details.

Method Blank

Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. DSC021WB - result was compliant to project requirement. Refer to sample result summary form for details.

Lab Control Sample

Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. J5C021WL/J5C021WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample

No matrix QC sample was provided on this SDG.

Surrogate

Surrogates were added on QC and field samples. All surrogate recoveries were within QC limits. Refer to sample result summary forms for details.

Sample Analysis

Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

CASE NARRATIVE

Client : EUROFINS EATON ANALYTICAL

Project: 380-40536

SDG : 23C236

METHOD 3520C/8015B  
PETROLEUM HYDROCARBONS BY EXTRACTION

A total of four(4) water samples were received on 03/17/23 to be analyzed for Petroleum Hydrocarbons by Extraction in accordance with Method 3520C/8015B and project specific requirements.

Holding Time

Samples were analyzed within the prescribed holding time.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source (ICV). Continuing calibration (CCV) verifications were carried out on a frequency specified by the project. All calibration requirements were within acceptance criteria. Refer to calibration summary forms of ICAL, ICV and CCV for details. MRL was analyzed as required by the project. Refer to MRL summary form for details.

Method Blank

Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. DSC021WB - result was compliant to project requirement. Refer to sample result summary form for details.

Lab Control Sample

Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. J8C021WL/J8C021WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample

No matrix QC sample was provided on this SDG.

Surrogate

Surrogates were added on QC and field samples. All surrogate recoveries were within QC limits. Refer to sample result summary forms for details.

Sample Analysis

Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

LAB CHRONICLE  
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : EUROFINS EATON ANALYTICAL  
 Project : 380-40536  
 Laboratory Sample ID : DSC021WB  
 SDG NO. : 23C236  
 Instrument ID : D5

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis Date/Time	Extraction Date/Time	Sample Data FN	Calibration Data FN	Prep. Batch	Notes

WATER

FN - Filename  
% Moist - Percent Moisture



LAB CHRONICLE  
PETROLEUM HYDROCARBONS BY EXTRACTION

SDG NO. : 23C236  
Instrument ID : D5

Client : EUROFINS EATON ANALYTICAL  
Project : 380-40536

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis Date/Time	Extraction Date/Time	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	DSC021WB	1	NA	03/20/2315:32	03/17/2316:15	LC20014A	LC20005A	23DSC021W	Method Blank
LCS1W	J5C021WL	1	NA	03/20/2316:28	03/17/2316:15	LC20017A	LC20005A	23DSC021W	Lab Control Sample (LCS)
LCD1W	J5C021WC	1	NA	03/20/2316:46	03/17/2316:15	LC20018A	LC20005A	23DSC021W	LCS Duplicate
380-40536-1	C236-01	1	NA	03/20/2318:56	03/17/2316:15	LC20025A	LC20005A	23DSC021W	Field Sample
380-40536-2	C236-02	1	NA	03/20/2319:15	03/17/2316:15	LC20026A	LC20005A	23DSC021W	Field Sample
380-40536-4	C236-03	1	NA	03/20/2319:33	03/17/2316:15	LC20027A	LC20005A	23DSC021W	Field Sample
380-40536-3	C236-04	1	NA	03/20/2319:52	03/17/2316:15	LC20028A	LC20005A	23DSC021W	Field Sample

FN - Filename  
% Moist - Percent Moisture



LAB CHRONICLE  
PETROLEUM HYDROCARBONS BY EXTRACTION

SDG NO. : 23C236  
Instrument ID : GCT105

Client : EUROFINS EATON ANALYTICAL  
Project : 380-40536

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	WATER		Extraction Date/Time	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
				Analysis Date/Time	Date/Time					
MBLK1W	DSC021WB	1	NA	03/20/2315:32	03/17/2316:15	LC20014A	LC20006A	23DSC021W	Method Blank	
LCS1W	J8C021WL	1	NA	03/20/2317:05	03/17/2316:15	LC20019A	LC20006A	23DSC021W	Lab Control Sample (LCS)	
LCD1W	J8C021WC	1	NA	03/20/2317:23	03/17/2316:15	LC20020A	LC20006A	23DSC021W	LCS Duplicate	
380-40536-1	C236-01	1	NA	03/20/2318:56	03/17/2316:15	LC20025A	LC20006A	23DSC021W	Field Sample	
380-40536-2	C236-02	1	NA	03/20/2319:15	03/17/2316:15	LC20026A	LC20006A	23DSC021W	Field Sample	
380-40536-4	C236-03	1	NA	03/20/2319:33	03/17/2316:15	LC20027A	LC20006A	23DSC021W	Field Sample	
380-40536-3	C236-04	1	NA	03/20/2319:52	03/17/2316:15	LC20028A	LC20006A	23DSC021W	Field Sample	

FN - Filename  
% Moist - Percent Moisture





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# SAMPLE RESULTS

METHOD 3520C/8015B  
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: EUROFINS EATON ANALYTICAL	Date Collected:	03/13/23 09:51
Project	: 380-40536	Date Received:	03/17/23
Batch No.	: 23C236	Date Extracted:	03/17/23 16:15
Sample ID	: 380-40536-1	Date Analyzed:	03/20/23 18:56
Lab Samp ID:	23C236-01	Dilution Factor:	1
Lab File ID:	LC20025A	Matrix:	WATER
Ext Btch ID:	23DSC021W	% Moisture:	NA
Calib. Ref.:	LC20004A	Instrument ID:	D5

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Diesel	ND	0.028	0.014
Motor Oil	ND	0.055	0.028

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.395	0.550	72	60-130
Hexacosane	0.150	0.138	109	60-130

Notes:

Parameter H-C Range  
Diesel C10-C24  
Motor Oil C24-C36

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

Sample Amount : 910ml Final Volume : 5ml  
Prepared by : P0reto Analyzed by : SDeeso

METHOD 3520C/8015B  
 PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: EUROFINS EATON ANALYTICAL	Date Collected:	03/13/23 09:51
Project	: 380-40536	Date Received:	03/17/23
Batch No.	: 23C236	Date Extracted:	03/17/23 16:15
Sample ID	: 380-40536-1	Date Analyzed:	03/20/23 18:56
Lab Samp ID:	23C236-01	Dilution Factor:	1
Lab File ID:	LC20025A	Matrix:	WATER
Ext Btch ID:	23DSC021W	% Moisture:	NA
Calib. Ref.:	LC20005A	Instrument ID:	D5

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
JP5	ND	0.055	0.028

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.395	0.550	72	60-130
Hexacosane	0.150	0.138	109	60-130

Notes:

RL : Reporting Limit

Parameter H-C Range

JP5 C8-C18

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

Sample Amount : 910ml

Final Volume : 5ml

Prepared by : P0reto

Analyzed by : SDeeso

METHOD 3520C/8015B  
 PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: EUROFINS EATON ANALYTICAL	Date Collected:	03/13/23 09:51
Project	: 380-40536	Date Received:	03/17/23
Batch No.	: 23C236	Date Extracted:	03/17/23 16:15
Sample ID	: 380-40536-1	Date Analyzed:	03/20/23 18:56
Lab Samp ID:	23C236-01	Dilution Factor:	1
Lab File ID:	LC20025A	Matrix:	WATER
Ext Btch ID:	23DSC021W	% Moisture:	NA
Calib. Ref.:	LC20006A	Instrument ID:	D5

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
JP8	ND	0.055	0.028

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.395	0.550	72	60-130
Hexacosane	0.150	0.138	109	60-130

Notes:

RL : Reporting Limit  
 Parameter H-C Range  
 JP8 C8-C18  
 Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.  
 Sample Amount : 910ml Final Volume : 5ml  
 Prepared by : P0reto Analyzed by : SDeeso

METHOD 3520C/8015B  
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: EUROFINS EATON ANALYTICAL	Date Collected:	03/13/23 10:47
Project	: 380-40536	Date Received:	03/17/23
Batch No.	: 23C236	Date Extracted:	03/17/23 16:15
Sample ID	: 380-40536-2	Date Analyzed:	03/20/23 19:15
Lab Samp ID:	23C236-02	Dilution Factor:	1
Lab File ID:	LC20026A	Matrix:	WATER
Ext Btch ID:	23DSC021W	% Moisture:	NA
Calib. Ref.:	LC20004A	Instrument ID:	D5

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Diesel	ND	0.024	0.012
Motor Oil	ND	0.047	0.024

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.345	0.470	73	60-130
Hexacosane	0.117	0.118	100	60-130

Notes:

Parameter H-C Range  
Diesel C10-C24  
Motor Oil C24-C36

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

Sample Amount : 1060ml Final Volume : 5ml  
Prepared by : P0reto Analyzed by : SDeeso

METHOD 3520C/8015B  
 PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: EUROFINS EATON ANALYTICAL	Date Collected:	03/13/23 10:47
Project	: 380-40536	Date Received:	03/17/23
Batch No.	: 23C236	Date Extracted:	03/17/23 16:15
Sample ID	: 380-40536-2	Date Analyzed:	03/20/23 19:15
Lab Samp ID:	23C236-02	Dilution Factor:	1
Lab File ID:	LC20026A	Matrix:	WATER
Ext Btch ID:	23DSC021W	% Moisture:	NA
Calib. Ref.:	LC20005A	Instrument ID:	D5

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
JP5	ND	0.047	0.024

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.345	0.470	73	60-130
Hexacosane	0.117	0.118	100	60-130

Notes:

RL : Reporting Limit

Parameter H-C Range

JP5 C8-C18

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

Sample Amount : 1060ml

Final Volume : 5ml

Prepared by : P0reto

Analyzed by : SDeeso

METHOD 3520C/8015B  
 PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: EUROFINS EATON ANALYTICAL	Date Collected:	03/13/23 10:47
Project	: 380-40536	Date Received:	03/17/23
Batch No.	: 23C236	Date Extracted:	03/17/23 16:15
Sample ID	: 380-40536-2	Date Analyzed:	03/20/23 19:15
Lab Samp ID:	23C236-02	Dilution Factor:	1
Lab File ID:	LC20026A	Matrix:	WATER
Ext Btch ID:	23DSC021W	% Moisture:	NA
Calib. Ref.:	LC20006A	Instrument ID:	D5

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
JP8	ND	0.047	0.024

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.345	0.470	73	60-130
Hexacosane	0.117	0.118	100	60-130

Notes:

RL : Reporting Limit  
 Parameter H-C Range  
 JP8 C8-C18

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

Sample Amount : 1060ml Final Volume : 5ml  
 Prepared by : P0reto Analyzed by : SDeeso

METHOD 3520C/8015B  
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: EUROFINS EATON ANALYTICAL	Date Collected:	03/13/23 11:18
Project	: 380-40536	Date Received:	03/17/23
Batch No.	: 23C236	Date Extracted:	03/17/23 16:15
Sample ID	: 380-40536-4	Date Analyzed:	03/20/23 19:33
Lab Samp ID:	23C236-03	Dilution Factor:	1
Lab File ID:	LC20027A	Matrix:	WATER
Ext Btch ID:	23DSC021W	% Moisture:	NA
Calib. Ref.:	LC20004A	Instrument ID:	D5

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Diesel	ND	0.028	0.014
Motor Oil	ND	0.056	0.028

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.418	0.555	75	60-130
Hexacosane	0.147	0.139	106	60-130

Notes:

Parameter H-C Range  
Diesel C10-C24  
Motor Oil C24-C36

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

Sample Amount : 900ml Final Volume : 5ml  
Prepared by : P0reto Analyzed by : SDeeso



METHOD 3520C/8015B  
 PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: EUROFINS EATON ANALYTICAL	Date Collected:	03/13/23 11:18
Project	: 380-40536	Date Received:	03/17/23
Batch No.	: 23C236	Date Extracted:	03/17/23 16:15
Sample ID	: 380-40536-4	Date Analyzed:	03/20/23 19:33
Lab Samp ID:	23C236-03	Dilution Factor:	1
Lab File ID:	LC20027A	Matrix:	WATER
Ext Btch ID:	23DSC021W	% Moisture:	NA
Calib. Ref.:	LC20005A	Instrument ID:	D5

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
JP5	ND	0.056	0.028

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.418	0.555	75	60-130
Hexacosane	0.147	0.139	106	60-130

Notes:

RL : Reporting Limit

Parameter H-C Range

JP5 C8-C18

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

Sample Amount : 900ml

Final Volume : 5ml

Prepared by : P0reto

Analyzed by : SDeeso

METHOD 3520C/8015B  
 PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: EUROFINS EATON ANALYTICAL	Date Collected:	03/13/23 11:18
Project	: 380-40536	Date Received:	03/17/23
Batch No.	: 23C236	Date Extracted:	03/17/23 16:15
Sample ID	: 380-40536-4	Date Analyzed:	03/20/23 19:33
Lab Samp ID:	23C236-03	Dilution Factor:	1
Lab File ID:	LC20027A	Matrix:	WATER
Ext Btch ID:	23DSC021W	% Moisture:	NA
Calib. Ref.:	LC20006A	Instrument ID:	D5

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
JP8	ND	0.056	0.028

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.418	0.555	75	60-130
Hexacosane	0.147	0.139	106	60-130

Notes:

RL : Reporting Limit

Parameter H-C Range

JP8 C8-C18

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

Sample Amount : 900ml

Final Volume : 5ml

Prepared by : P0reto

Analyzed by : SDeeso

METHOD 3520C/8015B  
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: EUROFINS EATON ANALYTICAL	Date Collected:	03/13/23 10:23
Project	: 380-40536	Date Received:	03/17/23
Batch No.	: 23C236	Date Extracted:	03/17/23 16:15
Sample ID	: 380-40536-3	Date Analyzed:	03/20/23 19:52
Lab Samp ID:	23C236-04	Dilution Factor:	1
Lab File ID:	LC20028A	Matrix:	WATER
Ext Btch ID:	23DSC021W	% Moisture:	NA
Calib. Ref.:	LC20004A	Instrument ID:	D5

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Diesel	ND	0.024	0.012
Motor Oil	ND	0.049	0.024

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.308	0.485	63	60-130
Hexacosane	0.120	0.121	99	60-130

Notes:

Parameter H-C Range  
Diesel C10-C24  
Motor Oil C24-C36

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

Sample Amount : 1030ml Final Volume : 5ml  
Prepared by : P0reto Analyzed by : SDeeso

METHOD 3520C/8015B  
 PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: EUROFINS EATON ANALYTICAL	Date Collected:	03/13/23 10:23
Project	: 380-40536	Date Received:	03/17/23
Batch No.	: 23C236	Date Extracted:	03/17/23 16:15
Sample ID	: 380-40536-3	Date Analyzed:	03/20/23 19:52
Lab Samp ID:	23C236-04	Dilution Factor:	1
Lab File ID:	LC20028A	Matrix:	WATER
Ext Btch ID:	23DSC021W	% Moisture:	NA
Calib. Ref.:	LC20005A	Instrument ID:	D5

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
JP5	ND	0.049	0.024

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.308	0.485	63	60-130
Hexacosane	0.120	0.121	99	60-130

Notes:

RL : Reporting Limit  
 Parameter H-C Range  
 JP5 C8-C18  
 Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.  
 Sample Amount : 1030ml Final Volume : 5ml  
 Prepared by : P0reto Analyzed by : SDeeso

METHOD 3520C/8015B  
 PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: EUROFINS EATON ANALYTICAL	Date Collected:	03/13/23 10:23
Project	: 380-40536	Date Received:	03/17/23
Batch No.	: 23C236	Date Extracted:	03/17/23 16:15
Sample ID	: 380-40536-3	Date Analyzed:	03/20/23 19:52
Lab Samp ID:	23C236-04	Dilution Factor:	1
Lab File ID:	LC20028A	Matrix:	WATER
Ext Btch ID:	23DSC021W	% Moisture:	NA
Calib. Ref.:	LC20006A	Instrument ID:	D5

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
JP8	ND	0.049	0.024

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.308	0.485	63	60-130
Hexacosane	0.120	0.121	99	60-130

Notes:

RL : Reporting Limit

Parameter H-C Range

JP8 C8-C18

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

Sample Amount : 1030ml

Final Volume : 5ml

Prepared by : P0reto

Analyzed by : SDeeso

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# QC SUMMARIES

METHOD 3520C/8015B  
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : EUROFINS EATON ANALYTICAL	Date Collected: 03/17/23 16:15
Project : 380-40536	Date Received: 03/17/23
Batch No. : 23C236	Date Extracted: 03/17/23 16:15
Sample ID : MBLK1W	Date Analyzed: 03/20/23 15:32
Lab Samp ID: DSC021WB	Dilution Factor: 1
Lab File ID: LC20014A	Matrix: WATER
Ext Btch ID: 23DSC021W	% Moisture: NA
Calib. Ref.: LC20004A	Instrument ID: D5

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)	
Diesel	ND	0.025	0.012	
Motor Oil	ND	0.050	0.025	

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.411	0.500	82	60-130
Hexacosane	0.136	0.125	108	60-130

Notes:

Parameter	H-C Range
Diesel	C10-C24
Motor Oil	C24-C36

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

Sample Amount : 1000ml	Final Volume : 5ml
Prepared by : P0reto	Analyzed by : SDeeso

EMAX QUALITY CONTROL DATA  
LAB CONTROL SAMPLE ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL  
PROJECT : 380-40536  
BATCH NO. : 23C236  
METHOD : 3520C/8015B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR:	1	1	1
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: DSC021WB	DSC021WL	DSC021WC
LAB FILE ID	: LC20014A	LC20015A	LC20016A
DATE PREPARED	: 03/17/23 16:15	03/17/23 16:15	03/17/23 16:15
DATE ANALYZED	: 03/20/23 15:32	03/20/23 15:50	03/20/23 16:09
PREP BATCH	: 23DSC021W	23DSC021W	23DSC021W
CALIBRATION REF:	LC20004A	LC20004A	LC20004A

ACCESSION:

PARAMETERS	MBResult (mg/L)	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Diesel	ND	2.50	2.61	104	2.50	2.28	91	13	50-130	30

SURROGATE PARAMETERS	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	QCLimit (%)
Bromobenzene	0.500	0.446	89	0.500	0.402	80	60-130
Hexacosane	0.125	0.141	113	0.125	0.133	106	60-130

MB: Method Blank sample LCS: Lab Control Sample LCD: Lab Control Sample Duplicate



METHOD 3520C/8015B  
 PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: EUROFINS EATON ANALYTICAL	Date Collected:	03/17/23 16:15
Project	: 380-40536	Date Received:	03/17/23
Batch No.	: 23C236	Date Extracted:	03/17/23 16:15
Sample ID	: MBLK1W	Date Analyzed:	03/20/23 15:32
Lab Samp ID:	DSC021WB	Dilution Factor:	1
Lab File ID:	LC20014A	Matrix:	WATER
Ext Btch ID:	23DSC021W	% Moisture:	NA
Calib. Ref.:	LC20005A	Instrument ID:	D5

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)	
JP5	ND	0.050	0.025	
SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.411	0.500	82	60-130
Hexacosane	0.136	0.125	108	60-130

Notes:

RL : Reporting Limit  
 Parameter H-C Range  
 JP5 C8-C18

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

Sample Amount : 1000ml Final Volume : 5ml  
 Prepared by : P0reto Analyzed by : SDeeso

EMAX QUALITY CONTROL DATA  
LAB CONTROL SAMPLE ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL  
PROJECT : 380-40536  
BATCH NO. : 23C236  
METHOD : 3520C/8015B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR:	1	1	1
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: DSC021WB	J5C021WL	J5C021WC
LAB FILE ID	: LC20014A	LC20017A	LC20018A
DATE PREPARED	: 03/17/23 16:15	03/17/23 16:15	03/17/23 16:15
DATE ANALYZED	: 03/20/23 15:32	03/20/23 16:28	03/20/23 16:46
PREP BATCH	: 23DSC021W	23DSC021W	23DSC021W
CALIBRATION REF:	LC20005A	LC20005A	LC20005A

ACCESSION:

PARAMETERS	MBResult (mg/L)	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
JP5	ND	2.50	1.97	79	2.50	1.95	78	1	30-160	30

SURROGATE PARAMETERS	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	QCLimit (%)
Bromobenzene	0.500	0.417	83	0.500	0.439	88	60-130
Hexacosane	0.125	0.123	98	0.125	0.124	99	60-130

MB: Method Blank sample LCS: Lab Control Sample LCD: Lab Control Sample Duplicate

METHOD 3520C/8015B  
 PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: EUROFINS EATON ANALYTICAL	Date Collected:	03/17/23 16:15
Project	: 380-40536	Date Received:	03/17/23
Batch No.	: 23C236	Date Extracted:	03/17/23 16:15
Sample ID	: MBLK1W	Date Analyzed:	03/20/23 15:32
Lab Samp ID:	DSC021WB	Dilution Factor:	1
Lab File ID:	LC20014A	Matrix:	WATER
Ext Btch ID:	23DSC021W	% Moisture:	NA
Calib. Ref.:	LC20006A	Instrument ID:	D5

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
JP8	ND	0.050	0.025

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.411	0.500	82	60-130
Hexacosane	0.136	0.125	108	60-130

Notes:

RL : Reporting Limit

Parameter H-C Range

JP8 C8-C18

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

Sample Amount : 1000ml

Final Volume : 5ml

Prepared by : P0reto

Analyzed by : SDeeso

EMAX QUALITY CONTROL DATA  
LAB CONTROL SAMPLE ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL  
PROJECT : 380-40536  
BATCH NO. : 23C236  
METHOD : 3520C/8015B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR:	1	1	1
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: DSC021WB	J8C021WL	J8C021WC
LAB FILE ID	: LC20014A	LC20019A	LC20020A
DATE PREPARED	: 03/17/23 16:15	03/17/23 16:15	03/17/23 16:15
DATE ANALYZED	: 03/20/23 15:32	03/20/23 17:05	03/20/23 17:23
PREP BATCH	: 23DSC021W	23DSC021W	23DSC021W
CALIBRATION REF:	LC20006A	LC20006A	LC20006A

ACCESSION:

PARAMETERS	MBResult (mg/L)	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
JP8	ND	2.50	2.02	81	2.50	2.56	102	24	30-160	30

SURROGATE PARAMETERS	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	QCLimit (%)
Bromobenzene	0.500	0.463	93	0.500	0.496	99	60-130
Hexacosane	0.125	0.126	101	0.125	0.140	112	60-130

MB: Method Blank sample LCS: Lab Control Sample LCD: Lab Control Sample Duplicate

April 05, 2023

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

Project Name: RED-HILL Project # 38001111 Job # 380-40536-1  
Physis Project ID: 1407003-383

Dear Rachelle,


Enclosed are the analytical results for samples submitted to PHYSIS Environmental Laboratories, Inc. (PHYSIS) on 3/17/2023. 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,

  
Misty Mercier  
714 602-5320  
Extension 202  
mistymercier@physislabs.com

## PROJECT SAMPLE LIST

Eurofins Eaton Analytical

PHYSIS Project ID: 1407003-383

RED-HILL Project # 38001111 Job # 380-40536-1

Total Samples: 4

PHYSIS ID	Sample ID	Description	Date	Time	Matrix	Sample Type
104593	MOANALUA WELLS	331-223-TP202 (380-40536-1)	3/13/2023	9:51	Samplewater	Not Specified
104594	AIEA WELLS PUMPS 1&2 (260)	331-203-TP400 (380-40536-2)	3/13/2023	10:47	Samplewater	Not Specified
104595	HALAWA WELLS UNITS 1 & 2	331-206-TP065 (380-40536-3)	3/13/2023	10:23	Samplewater	Not Specified
104596	AIEA GULCH WELLS PUMP	331-202-TP072 (380-40536-4)	3/13/2023	11:18	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.

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## 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: 104593-R1</b>	<b>MOANALUA WELLS 331-223-TP202</b>		<b>Matrix: Samplewater</b>					<b>Sampled: 13-Mar-23 9:51</b>		<b>Received: 17-Mar-23</b>	
Disalicylideneprapanediamine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total	O-41002		17-Mar-23	31-Mar-23
<b>Sample ID: 104594-R1</b>	<b>AIEA WELLS PUMPS 1&amp;2 (260) 331-</b>		<b>Matrix: Samplewater</b>					<b>Sampled: 13-Mar-23 10:47</b>		<b>Received: 17-Mar-23</b>	
Disalicylideneprapanediamine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total	O-41002		17-Mar-23	31-Mar-23
<b>Sample ID: 104595-R1</b>	<b>HALAWA WELLS UNITS 1 &amp; 2 331-2</b>		<b>Matrix: Samplewater</b>					<b>Sampled: 13-Mar-23 10:23</b>		<b>Received: 17-Mar-23</b>	
Disalicylideneprapanediamine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total	O-41002		17-Mar-23	31-Mar-23
<b>Sample ID: 104596-R1</b>	<b>AIEA GULCH WELLS PUMP 2 331-20</b>		<b>Matrix: Samplewater</b>					<b>Sampled: 13-Mar-23 11:18</b>		<b>Received: 17-Mar-23</b>	
Disalicylideneprapanediamine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total	O-41002		17-Mar-23	31-Mar-23

## Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
<b>Sample ID: 104593-R1</b>	<b>MOANALUA WELLS 331-223-TP202</b>	<b>Matrix: Samplewater</b>									
			<b>Sampled: 13-Mar-23 9:51</b>							<b>Received: 17-Mar-23</b>	<b>17-Mar-23</b>
(d10-Acenaphthene)	EPA 625.1	% Recovery	82	1			Total		O-41002	17-Mar-23	31-Mar-23
(d10-Phenanthrene)	EPA 625.1	% Recovery	84	1			Total		O-41002	17-Mar-23	31-Mar-23
(d12-Chrysene)	EPA 625.1	% Recovery	128	1			Total		O-41002	17-Mar-23	31-Mar-23
(d12-Perylene)	EPA 625.1	% Recovery	86	1			Total		O-41002	17-Mar-23	31-Mar-23
(d8-Naphthalene)	EPA 625.1	% Recovery	74	1			Total		O-41002	17-Mar-23	31-Mar-23
1-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
1-Methylphenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
2,3,5-Trimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
2,6-Dimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
2-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Acenaphthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Acenaphthylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Benz[a]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Benzo[a]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Benzo[b]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Benzo[e]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Benzo[g,h,i]perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Benzo[k]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Biphenyl	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Chrysene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Dibenz[a,h]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Dibenzo[a,l]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Dibenzothiophene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-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-41002	17-Mar-23	31-Mar-23
Fluorene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Indeno[1,2,3-cd]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Naphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Phenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23

## Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
<b>Sample ID: 104594-R1</b>	<b>AIEA WELLS PUMPS 1&amp;2 (260) 331- Matrix: Samplewater</b>						<b>Sampled:</b>	<b>13-Mar-23 10:47</b>	<b>Received:</b>	<b>17-Mar-23</b>	
(d10-Acenaphthene)	EPA 625.1	% Recovery	92	1			Total		O-41002	17-Mar-23	31-Mar-23
(d10-Phenanthrene)	EPA 625.1	% Recovery	90	1			Total		O-41002	17-Mar-23	31-Mar-23
(d12-Chrysene)	EPA 625.1	% Recovery	136	1			Total		O-41002	17-Mar-23	31-Mar-23
(d12-Perylene)	EPA 625.1	% Recovery	82	1			Total		O-41002	17-Mar-23	31-Mar-23
(d8-Naphthalene)	EPA 625.1	% Recovery	84	1			Total		O-41002	17-Mar-23	31-Mar-23
1-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
1-Methylphenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
2,3,5-Trimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
2,6-Dimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
2-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Acenaphthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Acenaphthylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Benz[a]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Benzo[a]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Benzo[b]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Benzo[e]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Benzo[g,h,i]perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Benzo[k]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Biphenyl	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Chrysene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Dibenz[a,h]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Dibenzo[a,l]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Dibenzothiophene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-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-41002	17-Mar-23	31-Mar-23
Fluorene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Indeno[1,2,3-cd]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Naphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Phenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23



## Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
<b>Sample ID: 104595-R1</b>	<b>HALAWA WELLS UNITS 1 &amp; 2 331-2</b>	<b>Matrix: Samplewater</b>					<b>Sampled: 13-Mar-23 10:23</b>			<b>Received: 17-Mar-23</b>	
(d10-Acenaphthene)	EPA 625.1	% Recovery	89	1			Total		O-41002	17-Mar-23	31-Mar-23
(d10-Phenanthrene)	EPA 625.1	% Recovery	89	1			Total		O-41002	17-Mar-23	31-Mar-23
(d12-Chrysene)	EPA 625.1	% Recovery	132	1			Total		O-41002	17-Mar-23	31-Mar-23
(d12-Perylene)	EPA 625.1	% Recovery	78	1			Total		O-41002	17-Mar-23	31-Mar-23
(d8-Naphthalene)	EPA 625.1	% Recovery	81	1			Total		O-41002	17-Mar-23	31-Mar-23
1-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
1-Methylphenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
2,3,5-Trimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
2,6-Dimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
2-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Acenaphthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Acenaphthylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Benz[a]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Benzo[a]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Benzo[b]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Benzo[e]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Benzo[g,h,i]perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Benzo[k]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Biphenyl	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Chrysene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Dibenz[a,h]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Dibenzo[a,l]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Dibenzothiophene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-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-41002	17-Mar-23	31-Mar-23
Fluorene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Indeno[1,2,3-cd]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Naphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Phenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23



## Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
<b>Sample ID: 104596-R1</b>	<b>AIEA GULCH WELLS PUMP 2 331-20 Matrix: Samplewater</b>						<b>Sampled:</b>	<b>13-Mar-23</b>	<b>11:18</b>	<b>Received:</b>	<b>17-Mar-23</b>
(d10-Acenaphthene)	EPA 625.1	% Recovery	85	1			Total		O-41002	17-Mar-23	31-Mar-23
(d10-Phenanthrene)	EPA 625.1	% Recovery	86	1			Total		O-41002	17-Mar-23	31-Mar-23
(d12-Chrysene)	EPA 625.1	% Recovery	131	1			Total		O-41002	17-Mar-23	31-Mar-23
(d12-Perylene)	EPA 625.1	% Recovery	84	1			Total		O-41002	17-Mar-23	31-Mar-23
(d8-Naphthalene)	EPA 625.1	% Recovery	78	1			Total		O-41002	17-Mar-23	31-Mar-23
1-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
1-Methylphenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
2,3,5-Trimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
2,6-Dimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
2-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Acenaphthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Acenaphthylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Benz[a]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Benzo[a]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Benzo[b]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Benzo[e]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Benzo[g,h,i]perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Benzo[k]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Biphenyl	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Chrysene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Dibenz[a,h]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Dibenzo[a,l]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Dibenzothiophene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-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-41002	17-Mar-23	31-Mar-23
Fluorene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Indeno[1,2,3-cd]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Naphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Phenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23
Pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41002	17-Mar-23	31-Mar-23



# QUALITY CONTROL REPORT

TERRA ENVIRONMENTAL LABORATORIES, INC. AURA

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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: 104592-B1</b>		<b>QAQC Procedural Blank</b>				<b>Matrix: BlankMatrix</b>			<b>Sampled:</b>			<b>Received:</b>			
		Method: EPA 625.1				Batch ID: O-41002			Prepared: 17-Mar-23			Analyzed: 30-Mar-23			
Disalicylidenepropanediamin	Total	ND	1	0.05	0.1	µg/L									
<b>Sample ID: 104592-BS1</b>		<b>QAQC Procedural Blank</b>				<b>Matrix: BlankMatrix</b>			<b>Sampled:</b>			<b>Received:</b>			
		Method: EPA 625.1				Batch ID: O-41002			Prepared: 17-Mar-23			Analyzed: 31-Mar-23			
Disalicylidenepropanediamin	Total	40.8	1	0.05	0.1	µg/L	50	0	82	50 - 150%	PASS				
<b>Sample ID: 104592-BS2</b>		<b>QAQC Procedural Blank</b>				<b>Matrix: BlankMatrix</b>			<b>Sampled:</b>			<b>Received:</b>			
		Method: EPA 625.1				Batch ID: O-41002			Prepared: 17-Mar-23			Analyzed: 31-Mar-23			
Disalicylidenepropanediamin	Total	44.9	1	0.05	0.1	µg/L	50	0	90	50 - 150%	PASS	9	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: 104592-B1</b>		<b>QAQC Procedural Blank</b>			<b>Matrix: BlankMatrix</b>		<b>Sampled:</b>		<b>Received:</b>		
		Method: EPA 625.1				Batch ID: O-41002	Prepared: 17-Mar-23		Analyzed: 30-Mar-23		
(d10-Acenaphthene)	Total	91	1			% Recovery	100	91	27 - 133%	PASS	
(d10-Phenanthrene)	Total	90	1			% Recovery	100	90	43 - 129%	PASS	
(d12-Chrysene)	Total	137	1			% Recovery	100	137	52 - 144%	PASS	
(d12-Perylene)	Total	82	1			% Recovery	100	82	36 - 161%	PASS	
(d8-Naphthalene)	Total	86	1			% Recovery	100	86	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					
Dibenzothiophene	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	
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: 104592-BS1</b>		<b>QAQC Procedural Blank</b>			<b>Matrix: BlankMatrix</b>			<b>Sampled:</b>		<b>Received:</b>		
Method: EPA 625.1		Batch ID: O-41002			Prepared: 17-Mar-23		Analyzed: 31-Mar-23					
(d10-Acenaphthene)	Total	92	1			% Recovery	100	0	92	27 - 133%	PASS	
(d10-Phenanthrene)	Total	91	1			% Recovery	100	0	91	43 - 129%	PASS	
(d12-Chrysene)	Total	136	1			% Recovery	100	0	136	52 - 144%	PASS	
(d12-Perylene)	Total	90	1			% Recovery	100	0	90	36 - 161%	PASS	
(d8-Naphthalene)	Total	85	1			% Recovery	100	0	85	25 - 125%	PASS	
1-Methylnaphthalene	Total	0.425	1	0.001	0.005	µg/L	0.5	0	85	31 - 128%	PASS	
1-Methylphenanthrene	Total	0.427	1	0.001	0.005	µg/L	0.5	0	85	66 - 127%	PASS	
2,3,5-Trimethylnaphthalene	Total	0.447	1	0.001	0.005	µg/L	0.5	0	89	55 - 122%	PASS	
2,6-Dimethylnaphthalene	Total	0.432	1	0.001	0.005	µg/L	0.5	0	86	48 - 120%	PASS	
2-Methylnaphthalene	Total	0.421	1	0.001	0.005	µg/L	0.5	0	84	47 - 130%	PASS	
Acenaphthene	Total	0.446	1	0.001	0.005	µg/L	0.5	0	89	53 - 131%	PASS	
Acenaphthylene	Total	0.441	1	0.001	0.005	µg/L	0.5	0	88	43 - 140%	PASS	
Anthracene	Total	0.437	1	0.001	0.005	µg/L	0.5	0	87	58 - 135%	PASS	
Benz[a]anthracene	Total	0.611	1	0.001	0.005	µg/L	0.5	0	122	55 - 145%	PASS	
Benzo[a]pyrene	Total	0.399	1	0.001	0.005	µg/L	0.5	0	80	51 - 143%	PASS	
Benzo[b]fluoranthene	Total	0.468	1	0.001	0.005	µg/L	0.5	0	94	46 - 165%	PASS	
Benzo[e]pyrene	Total	0.446	1	0.001	0.005	µg/L	0.5	0	89	42 - 152%	PASS	
Benzo[g,h,i]perylene	Total	0.436	1	0.001	0.005	µg/L	0.5	0	87	63 - 133%	PASS	
Benzo[k]fluoranthene	Total	0.504	1	0.001	0.005	µg/L	0.5	0	101	56 - 145%	PASS	
Biphenyl	Total	0.443	1	0.001	0.005	µg/L	0.5	0	89	56 - 119%	PASS	
Chrysene	Total	0.652	1	0.001	0.005	µg/L	0.5	0	130	56 - 141%	PASS	
Dibenz[a,h]anthracene	Total	0.45	1	0.001	0.005	µg/L	0.5	0	90	55 - 150%	PASS	
Dibenzo[a,l]pyrene	Total	0.215	1	0.001	0.005	µg/L	0.25	0	86	50 - 150%	PASS	
Dibenzothiophene	Total	0.439	1	0.001	0.005	µg/L	0.5	0	88	46 - 126%	PASS	

## Polynuclear Aromatic Hydrocarbons

## QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY		PRECISION		QA CODE <sub>c</sub>
							LEVEL	RESULT	%	LIMITS	%	LIMITS	
Fluoranthene	Total	0.426	1	0.001	0.005	µg/L	0.5	0	85	60 - 146%	PASS		
Fluorene	Total	0.455	1	0.001	0.005	µg/L	0.5	0	91	58 - 131%	PASS		
Indeno[1,2,3-cd]pyrene	Total	0.362	1	0.001	0.005	µg/L	0.5	0	72	50 - 151%	PASS		
Naphthalene	Total	0.403	1	0.001	0.005	µg/L	0.5	0	81	41 - 126%	PASS		
Perylene	Total	0.431	1	0.001	0.005	µg/L	0.5	0	86	48 - 141%	PASS		
Phenanthrene	Total	0.442	1	0.001	0.005	µg/L	0.5	0	88	67 - 127%	PASS		
Pyrene	Total	0.427	1	0.001	0.005	µg/L	0.5	0	85	54 - 156%	PASS		



## Polynuclear Aromatic Hydrocarbons

## QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY		PRECISION		QA CODE		
							LEVEL	RESULT	%	LIMITS	%	LIMITS			
<b>Sample ID: 104592-BS2</b>		<b>QAQC Procedural Blank</b>			<b>Matrix: BlankMatrix</b>			<b>Sampled:</b>			<b>Received:</b>				
Method: EPA 625.1		Batch ID: O-41002			Prepared: 17-Mar-23			Analyzed: 31-Mar-23							
(d10-Acenaphthene)	Total	87	1				% Recovery	100	0	87	27 - 133%	PASS	6	30	PASS
(d10-Phenanthrene)	Total	91	1				% Recovery	100	0	91	43 - 129%	PASS	0	30	PASS
(d12-Chrysene)	Total	138	1				% Recovery	100	0	138	52 - 144%	PASS	1	30	PASS
(d12-Perylene)	Total	90	1				% Recovery	100	0	90	36 - 161%	PASS	0	30	PASS
(d8-Naphthalene)	Total	78	1				% Recovery	100	0	78	25 - 125%	PASS	9	30	PASS
1-Methylnaphthalene	Total	0.389	1	0.001	0.005	µg/L		0.5	0	78	31 - 128%	PASS	9	30	PASS
1-Methylphenanthrene	Total	0.431	1	0.001	0.005	µg/L		0.5	0	86	66 - 127%	PASS	1	30	PASS
2,3,5-Trimethylnaphthalene	Total	0.433	1	0.001	0.005	µg/L		0.5	0	87	55 - 122%	PASS	2	30	PASS
2,6-Dimethylnaphthalene	Total	0.407	1	0.001	0.005	µg/L		0.5	0	81	48 - 120%	PASS	6	30	PASS
2-Methylnaphthalene	Total	0.385	1	0.001	0.005	µg/L		0.5	0	77	47 - 130%	PASS	9	30	PASS
Acenaphthene	Total	0.427	1	0.001	0.005	µg/L		0.5	0	85	53 - 131%	PASS	5	30	PASS
Acenaphthylene	Total	0.418	1	0.001	0.005	µg/L		0.5	0	84	43 - 140%	PASS	5	30	PASS
Anthracene	Total	0.441	1	0.001	0.005	µg/L		0.5	0	88	58 - 135%	PASS	1	30	PASS
Benz[a]anthracene	Total	0.621	1	0.001	0.005	µg/L		0.5	0	124	55 - 145%	PASS	2	30	PASS
Benzo[a]pyrene	Total	0.414	1	0.001	0.005	µg/L		0.5	0	83	51 - 143%	PASS	4	30	PASS
Benzo[b]fluoranthene	Total	0.47	1	0.001	0.005	µg/L		0.5	0	94	46 - 165%	PASS	0	30	PASS
Benzo[e]pyrene	Total	0.442	1	0.001	0.005	µg/L		0.5	0	88	42 - 152%	PASS	1	30	PASS
Benzo[g,h,i]perylene	Total	0.438	1	0.001	0.005	µg/L		0.5	0	88	63 - 133%	PASS	1	30	PASS
Benzo[k]fluoranthene	Total	0.51	1	0.001	0.005	µg/L		0.5	0	102	56 - 145%	PASS	1	30	PASS
Biphenyl	Total	0.415	1	0.001	0.005	µg/L		0.5	0	83	56 - 119%	PASS	7	30	PASS
Chrysene	Total	0.663	1	0.001	0.005	µg/L		0.5	0	133	56 - 141%	PASS	2	30	PASS
Dibenz[a,h]anthracene	Total	0.395	1	0.001	0.005	µg/L		0.5	0	79	55 - 150%	PASS	13	30	PASS
Dibenzo[a,l]pyrene	Total	0.215	1	0.001	0.005	µg/L		0.25	0	86	50 - 150%	PASS	0	30	PASS
Dibenzothiophene	Total	0.433	1	0.001	0.005	µg/L		0.5	0	87	46 - 126%	PASS	1	30	PASS

## Polynuclear Aromatic Hydrocarbons

## QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY		PRECISION		QA CODE <sup>c</sup>	
							LEVEL	RESULT	%	LIMITS	%	LIMITS		
Fluoranthene	Total	0.429	1	0.001	0.005	µg/L	0.5	0	86	60 - 146%	PASS	1	30	PASS
Fluorene	Total	0.44	1	0.001	0.005	µg/L	0.5	0	88	58 - 131%	PASS	3	30	PASS
Indeno[1,2,3-cd]pyrene	Total	0.368	1	0.001	0.005	µg/L	0.5	0	74	50 - 151%	PASS	3	30	PASS
Naphthalene	Total	0.363	1	0.001	0.005	µg/L	0.5	0	73	41 - 126%	PASS	10	30	PASS
Perylene	Total	0.461	1	0.001	0.005	µg/L	0.5	0	92	48 - 141%	PASS	7	30	PASS
Phenanthrene	Total	0.445	1	0.001	0.005	µg/L	0.5	0	89	67 - 127%	PASS	1	30	PASS
Pyrene	Total	0.435	1	0.001	0.005	µg/L	0.5	0	87	54 - 156%	PASS	2	30	PASS

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**PHYSIS**

**TENTATIVELY**

**IDENTIFIED COMPOUNDS**

ENVIRONMENTAL LABORATORIES, INC.

*Innovative Solutions for Nature*

Sample ID: 104593

Retention Time	Area (% of total)	Concentration (ng/L)	Library/ID	Cas Number	Match Quality (%)
35.7568	9.4298	1111	Anthracene-D10-	1517-22-2	91
10.7742	4.6311	546	1,5-Heptadien-4-one, 3,3,6-trimethyl-	546-49-6	91
67.6222	2.5480	300	1,4-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester	6422-86-2	97

Concentration estimated using the response for Anthracene-d10

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Sample ID: 104594

Retention Time	Area (% of total)	Concentration (ng/L)	Library/ID	Cas Number	Match Quality (%)
35.7553	8.4135	1111	Anthracene-D10-	1719-06-8	96
10.7742	4.2829	566	1,5-Heptadien-4-one, 3,3,6-trimethyl-	546-49-6	90

Concentration estimated using the response for Anthracene-d10

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Sample ID: 104595

Retention Time	Area (% of total)	Concentration (ng/L)	Library/ID	Cas Number	Match Quality (%)
35.7547	7.2829	111	Anthracene-D10-	1719-06-8	95
10.7740	3.9879	61	1,5-Heptadien-4-one, 3,3,6-trimethyl-	546-49-6	90

Concentration estimated using the response for Anthracene-d10

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Sample ID: 104596

Retention Time	Area (% of total)	Concentration (ng/L)	Library/ID	Cas Number	Match Quality (%)
35.7541	8.6863	1111	Anthracene-D10	1517-22-2	92
10.7755	3.9874	510	1,5-Heptadien-4-one, 3,3,6-trimethyl-	546-49-6	90

Concentration estimated using the response for Anthracene-d10

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Sample ID: Lab Blank B1\_41002

Retention Time	Area (% of total)	Concentration (ng/L)	Library/ID	Cas Number	Match Quality (%)
35.7567	7.9015	1111	Anthracene-D10-	1719-06-8	95
10.7755	4.4754	629	1,5-Heptadien-4-one, 3,3,6-trimethyl-	546-49-6	90

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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Project Iteration ID: 1407003-383  
 Client Name: Eurofins Eaton Analytical  
 Project Name: RED-HILL Project # 38001111 Job # 380-40536-1  
 COC Page Number: 2 of 2  
 Bottle Label Color: NA

**Sample Receipt Summary**

**Receiving Info**

- Initials Received By: MN
- Date Received: 3/17/23
- Time Received: 1215
- Client Name: Eurofins
- Courier Information: (Please circle)
  - Client
  - FedEx
  - UPS
  - GSO/GLS
  - Area Fast
  - Ontrac
  - DRS
  - PAMS
- PHYSIS Driver:
  - Start Time: \_\_\_\_\_
  - End Time: \_\_\_\_\_
  - Total Mileage: \_\_\_\_\_
  - Number of Pickups: \_\_\_\_\_
- Container Information: (Please put the # of containers or circle none)
  - Cooler
  - Styrofoam Cooler
  - Boxes
  - None
  - Carboy(s)
  - Carboy Trash Can(s)
  - Carboy Cap(s)
  - Other \_\_\_\_\_
- What type of ice was used: (Please circle any that apply)
  - Wet Ice
  - Blue Ice
  - Dry Ice
  - Water
  - None
- Randomly Selected Samples Temperature (°C): 7.4  
 Used I/R Thermometer # 1-2

**Inspection Info**

- Initials Inspected By: R6H

**Sample Integrity Upon Receipt:**

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

Notes:

See temp.

HALAWA WELLS UNITS 1 & 2 sampled the

COC 1023  
 Bottle 1022

# Eurofins Drinking Water Testing Pomona

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

## Chain of Custody Record

**eurofins**  
 Environmental Testing

<b>Client Information</b>				Sampler: <b>BAILEY</b>		Lab PM: Arada, Rachele		Carrier Tracking No(s):		COC No: 380-27938-2757.1																																	
Client Contact: Dr. Ron Fenstemacher				Phone: <b>808-748-5840</b>		E-Mail: Rachele.Arada@et.eurofinsus.com		State of Origin:		Page: Page 1 of 3																																	
Company: City & County of Honolulu				PWSID:		<b>Analysis Requested</b>						Job #:																															
Address: 630 South Beretania Street Chemistry Lab				Due Date Requested:								Field Filtered Sample (Yes or No) Perform MS/MSD (Yes or No)		SUBCONTRACT - 625 PAH Physis LL (EAL) + TICs		SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)		SUBCONTRACT - 8015 Diesel LL (EAL) and Motor Oil		525.2_PREC - (MOD) 525plus Plus TICs		SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)		537.1_DW_PREC - 537.1 Full List		533 - All Analytes		Total Number of Containers		<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: Honolulu				TAT Requested (days):																												Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No		PO #: C20525101 exp 05312023		WFO #:		Project #: 38001111		SSOW#:		Other:	
State, Zip: HI, 96843				Project Name: RED-HILL/HBWS Sites Event Desc: RUSH Weekly Red Hill																																							
Phone: 808-748-5091(Tel)				Email: RFENSTEMACHER@hbws.org		Project #: 38001111		SSOW#:																																			
Project Name: RED-HILL/HBWS Sites Event Desc: RUSH Weekly Red Hill				Site: Hawaii																																							
<b>Sample Identification</b>				Sample Date		Sample Time		Sample Type (C=comp, G=grab)		Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		SUBCONTRACT - 625 PAH Physis LL (EAL) + TICs		SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)		SUBCONTRACT - 8015 Diesel LL (EAL) and Motor Oil		525.2_PREC - (MOD) 525plus Plus TICs		SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)		537.1_DW_PREC - 537.1 Full List		533 - All Analytes		Total Number of Containers		<b>Special Instructions/Note:</b>											
MOANALUA WELLS				03/13/2023		0951		G		Water																																	
AIEA GULCH WELLS PUMP 2										Water																																	
AIEA WELLS PUMPS 1&2 (260)										Water																																	
HALAWA WELLS UNITS 1&2										Water																																	
MOANALUA WELLS										Water																																	
AIEA GULCH WELLS PUMP 2										Water																																	
AIEA WELLS PUMPS 1&2 (260)										Water																																	
HALAWA WELLS UNITS 1&2										Water																																	
MOANALUA WELLS										Water																																	
AIEA GULCH WELLS PUMP 2										Water																																	
AIEA WELLS PUMPS 1&2 (260) P2				03/13/2023		1047		G		Water																																	
<b>Possible Hazard Identification</b>				<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				<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b>				<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months																															
Deliverable Requested: I, II, III, IV, Other (specify)				Special Instructions/QC Requirements:																																							
Empty Kit Relinquished by:				Date:				Time:				Method of Shipment: <b>FedEx: 395760339115</b>																															
Relinquished by: <b>BAILEY</b>				Date/Time:				Company: <b>HBWS</b>				Received by: <b>Mallat Markuratin</b>				Date/Time: <b>3/15/23 950</b>				Company: <b>EEA</b>																							
Relinquished by:				Date/Time:				Company:				Received by:				Date/Time:				Company:																							
Relinquished by:				Date/Time:				Company:				Received by:				Date/Time:				Company:																							
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No				Custody Seal No.:				Cooler Temperature(s) °C and Other Remarks: <b>(#52A) 31/30 gel-F00260</b>																																			



380-40536 COC

**Eurofins Drinking Water Testing Pomona**

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

**Chain of Custody Record**

eurofins Environment Testing

<b>Client Information</b>		Sampler: <b>BAILEY</b>	Lab PM: Arada, Rachele	Carrier Tracking No(s):	COC No: 380-27938-2757.2										
Client Contact: Dr. Ron Fenstemacher		Phone: <b>808-748-5840</b>	E-Mail: Rachele.Arada@et.eurofinsus.com	State of Origin:	Page: Page 2 of 3										
Company: City & County of Honolulu		PWSID:	<b>Analysis Requested</b>												
Address: 630 South Beretania Street Chemistry Lab		Due Date Requested:	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">Field Filtered Sample (Yes or No)</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">Perform MS/MSD (Yes or No)</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">SUBCONTRACT - 625 PAH Physis LL (EAL) + TICs</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">SUBCONTRACT - 8015 Diesel LL (EAL) and Motor Oil</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">525.2_PREC - (MOD) 525plus Plus TICs</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">537.1_DW_PREC - 537.1 Full List</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">533 - All Analytes</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">Total Number of containers</td> </tr> </table>			Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUBCONTRACT - 625 PAH Physis LL (EAL) + TICs	SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)	SUBCONTRACT - 8015 Diesel LL (EAL) and Motor Oil	525.2_PREC - (MOD) 525plus Plus TICs	SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)	537.1_DW_PREC - 537.1 Full List	533 - All Analytes	Total Number of containers
Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUBCONTRACT - 625 PAH Physis LL (EAL) + TICs				SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)	SUBCONTRACT - 8015 Diesel LL (EAL) and Motor Oil	525.2_PREC - (MOD) 525plus Plus TICs	SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)	537.1_DW_PREC - 537.1 Full List	533 - All Analytes	Total Number of containers			
City: Honolulu		TAT Requested (days):													
State, Zip: HI, 96843		Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No													
Phone: 808-748-5091 (Tel)		PO #: C20525101 exp 05312023													
Email: RFENSTEMACHER@hbws.org		WO #:													
Project Name: RED-HILL/HBWS Sites Event Desc: RUSH Weekly Red Hill		Project #: 38001111	Preservation Codes: 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)												
Site: Hawaii		SSOW#:													
<b>Sample Identification</b>		Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)										
				Preservation Code:		R	R	RA	RA	Y	N	<b>Special Instructions/Note:</b>			
HALAWA WELLS UNITS 1&2 P1		03/13/2023	1023	G	Water		X	X	X	X	X				
MOANALUA WELLS					Water										
AIEA GULCH WELLS PUMP 2					Water										
AIEA WELLS PUMPS 1&2 (260)					Water										
HALAWA WELLS UNITS 1&2					Water										
TB MOANALUA WELLS		03/13/2023	0951		Water					X					
TB AIEA GULCH WELLS PUMP2		03/13/2023	1118		Water					X					
TB AIEA WELLS PUMPS 1&2 (260)		03/13/2023	1047		Water					X					
TB HALAWA WELLS UNITS 1&2		03/13/2023	1023		Water					X					
MOANALUA WELLS					Water										
AIEA GULCH WELLS PUMP 2		03/13/2023	1118	G	Water		X	X	X	X	X				
<b>Possible Hazard Identification</b>						<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b>									
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months									
Deliverable Requested: I, II, III, IV, Other (specify)						Special Instructions/QC Requirements:									
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment: <b>Fed Ex: 395760339115</b>									
Relinquished by: <b>BAILEY</b>		Date/Time:		Company: <b>HBWS</b>		Received by: <b>Mark Curritin</b>		Date/Time: <b>3/15/23 950</b>		Company: <b>EAL</b>					
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:					
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:					
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:				Cooler Temperature(s) °C and Other Remarks: <b>(752A) 3.1/3.0 gel-frozen</b>									





**Bottle Order Information**

Bottle Order: RUSH RED-HILL WEEKLY  
 Bottle Order #: 2757  
 Request From Client: 3/2/2023  
 Date Order Posted: 7/20/2022 11:12:54AM  
 Order Status: Ready To Process  
 Prepared By: Davis Haley  
**Deliver By Date: 3/6/2023 11:59:00PM**  
 Lab Project Number: 38001111  
 PWSID:

**Order Completion Information**

Creator: Michelle Do  
 Filled by:  
 Sent Date:  
 Sent Via:  
 Tracking #:

Sets	Bottles/Set	Qty	Bottle Type Description	Preservative	Method	Matrix	Sample Type	Comments	Lot #
4	2	8	Amber Glass 1 liter - Sodium Thiosulfate	Sodium Thiosulfate	SUBCONTRACT - 625 PAH Physis LL (EAL) + TICs	Water	Normal	625 PAH	
4	4	16	Voa Vial 40ml - SodiumThio w/HCl-dropper	Sodium Thiosulfate	SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)	Water	Normal		
4	2	8	Amber Glass 1 L - NaThiosulfate 8mL HCL	Sodium Thiosulfate/Hydrochloric Acid	SUBCONTRACT - 8015 Diesel LL (EAL) and Motor Oil	Water	Normal		
4	2	8	Amber Glass 1 Liter- Sodium Sulfite/HCl	Sodium Sulfite w/HCl	525.2_PREC - (MOD) 525plus Plus TICs	Water	Normal		
4	2	8	VOA Vial 40mL - NaThiosulfate/HCL	Sodium Thiosulfate/Hydrochloric Acid	SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)	Water	Trip Blank		
4	3	12	Plastic 250ml - Trizma	Trizma	537.1_DW_PREC - 537.1 Full List	Water	Normal		
4	3	12	Plastic 250ml - Ammonium Acetate	Ammonium Acetate	533 - All Analytes	Water	Normal		
4	1	4	Plastic 250ml - Reagent Water	None		Water	Field Blank		
4	1	4	Plastic 250ml - Ammonium Acetate	Ammonium Acetate		Water	Field Blank		
4	1	4	Plastic 250ml - Reagent Water	None		Water	Field Blank		
4	1	4	Plastic 250ml - Trizma	Trizma		Water	Field Blank		

Please notify your PM immediately if an error is found in shipment. When returning samples, please return all provided QC samples.



**Eurofins Drinking Water Testing Pomona**

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

**Chain of Custody Record**

eurofins Environment Testing

<b>Client Information</b>				Sampler: BAILEY	Lab PM: Arada, Rachele	Carrier Tracking No(s):	COC No: 380-27938-2757.2								
Client Contact: Dr. Ron Fenstermacher				Phone: 808-748-5840	E-Mail: Rachele.Arada@et.eurofinsus.com	State of Origin:	Page: Page 2 of 3								
Company: City & County of Honolulu				PWSID:	<b>Analysis Requested</b>		Job #:								
Address: 630 South Beretania Street Chemistry Lab				Due Date Requested:	Field Filtered Sample (Yes or No)	SUBCONTRACT - 625 PAH Physis LL (EAL) + TICs	SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)	SUBCONTRACT - 8015 Diesel LL (EAL) and Motor Oil	525.2_PREC - (MOD) 525plus Plus TICs	SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)	537.1_DW_PREC - 537.1 Full List	533 - All Analytes	Total Number of containers	<b>Preservation Codes:</b>	
City: Honolulu				TAT Requested (days):										A - HCL	M - Hexane
State, Zip: HI, 96843				Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No										B - NaOH	N - None
Phone: 808-748-5091(Tel)				PO #: C20525101 exp 05312023										C - Zn Acetate	O - AsNaO2
Email: RFENSTEMACHER@hbws.org				WO #:										D - Nitric Acid	P - Na2O4S
Project Name: RED-HILL/HBWS Sites Event Desc: RUSH Weekly Red Hill				Project #: 38001111			E - NaHSO4	Q - Na2SO3							
Site: Hawaii				SSOW#:			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)								
							Other:								
<b>Sample Identification</b>				Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)						<b>Special Instructions/Note:</b>		
						Preservation Code:		R	R	RA	RA	Y	N		
HALAWA WELLS UNITS 1&2 P1				03/13/2023	1023	G	Water		X	X	X	X	X	X	
MOANALUA WELLS							Water								
AIEA GULCH WELLS PUMP 2							Water								
AIEA WELLS PUMPS 1&2 (260)							Water								
HALAWA WELLS UNITS 1&2							Water								
TB MOANALUA WELLS				03/13/2023	0951		Water								
TB AIEA GULCH WELLS PUMP2				03/13/2023	1118		Water								
TB AIEA WELLS PUMPS 1&2 (260)				03/13/2023	1047		Water								
TB HALAWA WELLS UNITS 1&2				03/13/2023	1023		Water								
MOANALUA WELLS							Water								
AIEA GULCH WELLS PUMP 2				03/13/2023	1118	G	Water		X	X	X	X	X		
<b>Possible Hazard Identification</b>				<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				<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b>							
								<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months							
Deliverable Requested: I, II, III, IV, Other (specify)				Special Instructions/QC Requirements:											
Empty Kit Relinquished by:				Date:	Time:	Method of Shipment: FedEx: 3957603394115									
Relinquished by: BAILEY				Date/Time:	Company: HBWS	Received by: Mark Curritin		Date/Time: 3/15/23 950	Company: EEA						
Relinquished by:				Date/Time:	Company:	Received by:		Date/Time:	Company:						
Relinquished by:				Date/Time:	Company:	Received by:		Date/Time:	Company:						
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: (752A) 3.1/3.0 gel-frozen											

**Eurofins Drinking Water Testing Pomona**

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

**Chain of Custody Record**



<b>Client Information</b>			Sampler: BAILEY	Lab PM: Arada, Rachele	Carrier Tracking No(s):	COC No: 380-27938-2757.3	
Client Contact: Dr. Ron Fenstemacher			Phone: 808-748-5840	E-Mail: Rachele.Arada@et.eurofinsus.com	State of Origin:	Page: Page 3 of 3	
Company: City & County of Honolulu			PWSID:	<b>Analysis Requested</b>			
Address: 630 South Beretania Street Chemistry Lab			Due Date Requested:	Field Filtered Sample (Yes or No)	Perform MS/MS (Yes or No)	Total Number of Containers	
City: Honolulu			TAT Requested (days):				
State, Zip: HI, 96843			Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No				
Phone: 808-748-5091 (Tel)			PO #: C20525101 exp 05312023				
Email: RFENSTEMACHER@hbws.org			WO #:				
Project Name: RED-HILL/HBWS Sites Event Desc: RUSH Weekly Red Hill			Project #: 38001111	SUBCONTRACT - 625 PAH Physis LL (EAL) + TICs	SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)	SUBCONTRACT - 8015 Diesel LL (EAL) and Motor Oil	
Site: Hawaii			SSOW#:	525.2_PREC - (MOD) 525plus Plus TICs	SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)	537.1_DW_PREC - 537.1 Full List	
<b>Sample Identification</b>			Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Other:
							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)
							Special Instructions/Note:
AIEA WELLS PUMPS 1&2 (260)						Water	
HALAWA WELLS UNITS 1&2						Water	
FB: MOANALUA WELLS			march 13, 2023	0951		Water	
FB: AIEA GULCH WELLS PUMP 2			march 13, 2023	1118		Water	
FB: AIEA WELLS PUMPS 1&2 (260) P2			march 13, 2023	1047		Water	
FB: HALAWA WELLS UNITS 1&2 P1			march 13, 2023	1023		Water	
<b>Possible Hazard Identification</b>			<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b>				
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological			<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months				
Deliverable Requested: I, II, III, IV, Other (specify)			Special Instructions/QC Requirements:				
Empty Kit Relinquished by:			Date:	Time:	Method of Shipment: FEDEX: 395760339115		
Relinquished by:			Date/Time:	Company:	Received by: Maura Nankumutia	Date/Time: 3/15/23 950	Company: EPA
Relinquished by:			Date/Time:	Company:	Received by:	Date/Time:	Company:
Relinquished by:			Date/Time:	Company:	Received by:	Date/Time:	Company:
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No			Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: (752A) 3-1/3.0 gel-frozen		

**Bottle Order Information**

Bottle Order: RUSH RED-HILL WEEKLY  
 Bottle Order #: 2757  
 Request From Client: 3/2/2023  
 Date Order Posted: 7/20/2022 11:12:54AM  
 Order Status: Ready To Process  
 Prepared By: Davis Haley  
**Deliver By Date: 3/6/2023 11:59:00PM**  
 Lab Project Number: 38001111  
 PWSID:

**Order Completion Information**

Creator: Michelle Do  
 Filled by:  
 Sent Date:  
 Sent Via:  
 Tracking #:

Sets	Bottles/Set	Qty	Bottle Type Description	Preservative	Method	Matrix	Sample Type	Comments	Lot #
4	2	8	Amber Glass 1 liter - Sodium Thiosulfate	Sodium Thiosulfate	SUBCONTRACT - 625 PAH Physis LL (EAL) + TICs	Water	Normal	625 PAH	
4	4	16	Voa Vial 40ml - SodiumThio w/HCl-dropper	Sodium Thiosulfate	SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)	Water	Normal		
4	2	8	Amber Glass 1 L - NaThiosulfate 8mL HCL	Sodium Thiosulfate/Hydrochloric Acid	SUBCONTRACT - 8015 Diesel LL (EAL) and Motor Oil	Water	Normal		
4	2	8	Amber Glass 1 Liter- Sodium Sulfite/HCl	Sodium Sulfite w/HCl	525.2_PREC - (MOD) 525plus Plus TICs	Water	Normal		
4	2	8	VOA Vial 40mL - NaThiosulfate/HCL	Sodium Thiosulfate/Hydrochloric Acid	SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)	Water	Trip Blank		
4	3	12	Plastic 250ml - Trizma	Trizma	537.1_DW_PREC - 537.1 Full List	Water	Normal		
4	3	12	Plastic 250ml - Ammonium Acetate	Ammonium Acetate	533 - All Analytes	Water	Normal		
4	1	4	Plastic 250ml - Reagent Water	None		Water	Field Blank		
4	1	4	Plastic 250ml - Ammonium Acetate	Ammonium Acetate		Water	Field Blank		
4	1	4	Plastic 250ml - Reagent Water	None		Water	Field Blank		
4	1	4	Plastic 250ml - Trizma	Trizma		Water	Field Blank		

Please notify your PM immediately if an error is found in shipment. When returning samples, please return all provided QC samples.

# Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-40536-1

**Login Number: 40536**  
**List Number: 1**  
**Creator: Ngo, Theodore**

**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	