

# ANALYTICAL REPORT

## PREPARED FOR

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## JOB DESCRIPTION

RED-HILL  
8015, 625  
RUSH Weekly Red Hill

## JOB NUMBER

380-76545-2

# Eurofins Eaton Analytical Pomona

## Job Notes

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

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

## Compliance Statement

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

## Authorization



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# Definitions/Glossary

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

Job ID: 380-76545-2  
SDG: 8015, 625

## Qualifiers

### GC Semi VOA

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.

## Glossary

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

# Case Narrative

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

Job ID: 380-76545-2

**Job ID: 380-76545-2**

**Eurofins Eaton Analytical Pomona**

## Job Narrative 380-76545-2

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

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

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

### Receipt

The samples were received on 12/28/2023 9:20 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 0.8°C and 1.5°C

### Subcontract Work

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

### Gasoline Range Organics

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

### GC Semi VOA

Method 8015B\_DRO\_LL\_CS: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 570-397690 and analytical batch 570-398593 recovered outside control limits for the following analytes: C10-C28.

Method 8015B\_DRO\_LL\_CS: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 570-397690 and analytical batch 570-402355 recovered outside control limits for the following analytes: C10-C28.

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

# Detection Summary

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

Job ID: 380-76545-2  
SDG: 8015, 625

<b>Client Sample ID: MOANALUA WELLS</b> <b>PWSID Number: HI0000331</b>	<b>Lab Sample ID: 380-76545-1</b>
<input type="checkbox"/> No Detections.	
<b>Client Sample ID: AIEA GULCH WELLS PUMP 2</b> <b>PWSID Number: HI0000331</b>	<b>Lab Sample ID: 380-76545-2</b>
<input type="checkbox"/> No Detections.	
<b>Client Sample ID: AIEA WELLS PUMPS 1&amp;2 (260) P2</b> <b>PWSID Number: HI0000331</b>	<b>Lab Sample ID: 380-76545-3</b>
<input type="checkbox"/> No Detections.	
<b>Client Sample ID: HALAWA WELLS UNITS 1 &amp; 2 P1</b> <b>PWSID Number: HI0000331</b>	<b>Lab Sample ID: 380-76545-4</b>
<input type="checkbox"/> No Detections.	
<b>Client Sample ID: TB MOANALUA WELLS</b>	<b>Lab Sample ID: 380-76545-5</b>
<input type="checkbox"/> No Detections.	
<b>Client Sample ID: TB AIEA GULCH WELLS PUMP 2</b>	<b>Lab Sample ID: 380-76545-6</b>
<input type="checkbox"/> No Detections.	
<b>Client Sample ID: TB AIEA WELLS PUMPS 1&amp;2 (260) P2</b>	<b>Lab Sample ID: 380-76545-7</b>
<input type="checkbox"/> No Detections.	
<b>Client Sample ID: TB HALAWA WELLS UNITS 1 &amp; 2 P1</b>	<b>Lab Sample ID: 380-76545-8</b>
<input type="checkbox"/> No Detections.	

This Detection Summary does not include radiochemical test results.

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# Client Sample Results

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

Job ID: 380-76545-2  
SDG: 8015, 625

**Client Sample ID: MOANALUA WELLS**

**Lab Sample ID: 380-76545-1**

Date Collected: 12/26/23 10:04

Matrix: Drinking Water

Date Received: 12/28/23 09:20

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	<10		10	ug/L			01/05/24 15:33	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		38 - 134				01/05/24 15:33	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (C10-C24)	<25		25	ug/L		01/02/24 13:15	01/05/24 05:17	1
Motor Oil Range Organics [C24-C36]	<25		25	ug/L		01/02/24 13:15	01/05/24 05:17	1
C8-C18	<25		25	ug/L		01/02/24 13:15	01/05/24 05:17	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
n-Octacosane (Surr)	100		60 - 130			01/02/24 13:15	01/05/24 05:17	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Ethanol	<0.10		0.10	mg/L			01/08/24 21:08	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Hexafluoro-2-propanol (Surr)	100		54 - 120				01/08/24 21:08	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		01/02/24 00:00	02/03/24 06:15	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 06:15	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 06:15	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 06:15	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 06:15	1
Acenaphthene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 06:15	1
Acenaphthylene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 06:15	1
Anthracene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 06:15	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 06:15	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 06:15	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 06:15	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 06:15	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 06:15	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 06:15	1
Biphenyl	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 06:15	1
Chrysene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 06:15	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 06:15	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 06:15	1
Dibenzothiophene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 06:15	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		01/02/24 00:00	02/03/24 06:15	1
Fluoranthene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 06:15	1
Fluorene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 06:15	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 06:15	1
Naphthalene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 06:15	1
Perylene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 06:15	1
Phenanthrene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 06:15	1
Pyrene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 06:15	1

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# Client Sample Results

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

Job ID: 380-76545-2  
SDG: 8015, 625

## Client Sample ID: MOANALUA WELLS

Date Collected: 12/26/23 10:04  
Date Received: 12/28/23 09:20

## Lab Sample ID: 380-76545-1

Matrix: Drinking Water  
PWSID Number: HI0000331

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	62		27 - 133	01/02/24 00:00	02/03/24 06:15	1
(d10-Phenanthrene)	81		43 - 129	01/02/24 00:00	02/03/24 06:15	1
(d12-Chrysene)	80		52 - 144	01/02/24 00:00	02/03/24 06:15	1
(d12-Perylene)	84		36 - 161	01/02/24 00:00	02/03/24 06:15	1
(d8-Naphthalene)	57		25 - 125	01/02/24 00:00	02/03/24 06:15	1

## Client Sample ID: AIEA GULCH WELLS PUMP 2

Date Collected: 12/26/23 11:06  
Date Received: 12/28/23 09:20

## Lab Sample ID: 380-76545-2

Matrix: Drinking Water  
PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	<10		10	ug/L			01/05/24 16:00	1

  

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	89		38 - 134		01/05/24 16:00	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (C10-C24)	<26		26	ug/L		01/02/24 13:15	01/05/24 05:38	1
Motor Oil Range Organics [C24-C36]	<26		26	ug/L		01/02/24 13:15	01/05/24 05:38	1
C8-C18	<26		26	ug/L		01/02/24 13:15	01/05/24 05:38	1

  

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Octacosane (Surr)	97		60 - 130	01/02/24 13:15	01/05/24 05:38	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Ethanol	<0.10		0.10	mg/L			01/08/24 21:30	1

  

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Hexafluoro-2-propanol (Surr)	84		54 - 120		01/08/24 21:30	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		01/02/24 00:00	02/03/24 07:59	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 07:59	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 07:59	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 07:59	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 07:59	1
Acenaphthene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 07:59	1
Acenaphthylene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 07:59	1
Anthracene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 07:59	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 07:59	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 07:59	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 07:59	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 07:59	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 07:59	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 07:59	1
Biphenyl	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 07:59	1
Chrysene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 07:59	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 07:59	1

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# Client Sample Results

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

Job ID: 380-76545-2  
SDG: 8015, 625

## Client Sample ID: AIEA GULCH WELLS PUMP 2

## Lab Sample ID: 380-76545-2

Date Collected: 12/26/23 11:06

Matrix: Drinking Water

Date Received: 12/28/23 09:20

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
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 07:59	1
Dibenzothiophene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 07:59	1
Disalicylidenepranediamine	ND		0.1	0.05	µg/L		01/02/24 00:00	02/03/24 07:59	1
Fluoranthene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 07:59	1
Fluorene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 07:59	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 07:59	1
Naphthalene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 07:59	1
Perylene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 07:59	1
Phenanthrene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 07:59	1
Pyrene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 07:59	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	73		27 - 133				01/02/24 00:00	02/03/24 07:59	1
(d10-Phenanthrene)	82		43 - 129				01/02/24 00:00	02/03/24 07:59	1
(d12-Chrysene)	79		52 - 144				01/02/24 00:00	02/03/24 07:59	1
(d12-Perylene)	105		36 - 161				01/02/24 00:00	02/03/24 07:59	1
(d8-Naphthalene)	72		25 - 125				01/02/24 00:00	02/03/24 07:59	1

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

## Lab Sample ID: 380-76545-3

Date Collected: 12/26/23 11:33

Matrix: Drinking Water

Date Received: 12/28/23 09:20

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
GRO (C6-C10)	<10		10	ug/L			01/05/24 16:26	1	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		38 - 134				01/05/24 16:26	1	

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Diesel Range Organics (C10-C24)	<25		25	ug/L		01/02/24 13:15	01/05/24 05:59	1	
Motor Oil Range Organics [C24-C36]	<25		25	ug/L		01/02/24 13:15	01/05/24 05:59	1	
C8-C18	<25		25	ug/L		01/02/24 13:15	01/05/24 05:59	1	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
n-Octacosane (Surr)	96		60 - 130				01/02/24 13:15	01/05/24 05:59	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Ethanol	<0.10		0.10	mg/L			01/08/24 21:51	1	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Hexafluoro-2-propanol (Surr)	79		54 - 120				01/08/24 21:51	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		01/02/24 00:00	02/03/24 09:43	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 09:43	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 09:43	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 09:43	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 09:43	1

Eurofins Eaton Analytical Pomona

# Client Sample Results

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

Job ID: 380-76545-2  
SDG: 8015, 625

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

**Lab Sample ID: 380-76545-3**

Date Collected: 12/26/23 11:33

Matrix: Drinking Water

Date Received: 12/28/23 09:20

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		01/02/24 00:00	02/03/24 09:43	1
Acenaphthylene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 09:43	1
Anthracene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 09:43	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 09:43	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 09:43	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 09:43	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 09:43	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 09:43	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 09:43	1
Biphenyl	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 09:43	1
Chrysene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 09:43	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 09:43	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 09:43	1
Dibenzothiophene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 09:43	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		01/02/24 00:00	02/03/24 09:43	1
Fluoranthene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 09:43	1
Fluorene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 09:43	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 09:43	1
Naphthalene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 09:43	1
Perylene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 09:43	1
Phenanthrene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 09:43	1
Pyrene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 09:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	65		27 - 133	01/02/24 00:00	02/03/24 09:43	1
(d10-Phenanthrene)	82		43 - 129	01/02/24 00:00	02/03/24 09:43	1
(d12-Chrysene)	85		52 - 144	01/02/24 00:00	02/03/24 09:43	1
(d12-Perylene)	101		36 - 161	01/02/24 00:00	02/03/24 09:43	1
(d8-Naphthalene)	59		25 - 125	01/02/24 00:00	02/03/24 09:43	1

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

**Lab Sample ID: 380-76545-4**

Date Collected: 12/26/23 10:32

Matrix: Drinking Water

Date Received: 12/28/23 09:20

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	<10		10	ug/L			01/05/24 16:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	87		38 - 134		01/05/24 16:52	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (C10-C24)	<25		25	ug/L		01/02/24 13:15	01/05/24 06:20	1
Motor Oil Range Organics [C24-C36]	<25		25	ug/L		01/02/24 13:15	01/05/24 06:20	1
C8-C18	<25		25	ug/L		01/02/24 13:15	01/05/24 06:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Octacosane (Surr)	95		60 - 130	01/02/24 13:15	01/05/24 06:20	1

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# Client Sample Results

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

Job ID: 380-76545-2  
SDG: 8015, 625

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

**Lab Sample ID: 380-76545-4**

Date Collected: 12/26/23 10:32

Matrix: Drinking Water

Date Received: 12/28/23 09:20

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Ethanol	<0.10		0.10	mg/L			01/08/24 22:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Hexafluoro-2-propanol (Surr)	82		54 - 120		01/08/24 22:13	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		01/02/24 00:00	02/03/24 11:28	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 11:28	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 11:28	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 11:28	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 11:28	1
Acenaphthene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 11:28	1
Acenaphthylene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 11:28	1
Anthracene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 11:28	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 11:28	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 11:28	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 11:28	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 11:28	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 11:28	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 11:28	1
Biphenyl	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 11:28	1
Chrysene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 11:28	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 11:28	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 11:28	1
Dibenzothiophene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 11:28	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		01/02/24 00:00	02/03/24 11:28	1
Fluoranthene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 11:28	1
Fluorene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 11:28	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 11:28	1
Naphthalene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 11:28	1
Perylene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 11:28	1
Phenanthrene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 11:28	1
Pyrene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 11:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	69		27 - 133	01/02/24 00:00	02/03/24 11:28	1
(d10-Phenanthrene)	83		43 - 129	01/02/24 00:00	02/03/24 11:28	1
(d12-Chrysene)	93		52 - 144	01/02/24 00:00	02/03/24 11:28	1
(d12-Perylene)	93		36 - 161	01/02/24 00:00	02/03/24 11:28	1
(d8-Naphthalene)	65		25 - 125	01/02/24 00:00	02/03/24 11:28	1

**Client Sample ID: TB MOANALUA WELLS**

**Lab Sample ID: 380-76545-5**

Date Collected: 12/26/23 10:04

Matrix: Water

Date Received: 12/28/23 09:20

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	<10		10	µg/L			01/05/24 18:37	1

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# Client Sample Results

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

Job ID: 380-76545-2  
 SDG: 8015, 625

## Client Sample ID: TB MOANALUA WELLS

Lab Sample ID: 380-76545-5

Date Collected: 12/26/23 10:04

Matrix: Water

Date Received: 12/28/23 09:20

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		38 - 134		01/05/24 18:37	1

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

Lab Sample ID: 380-76545-6

Date Collected: 12/26/23 11:06

Matrix: Water

Date Received: 12/28/23 09:20

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	<10		10	ug/L			01/05/24 14:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		38 - 134		01/05/24 14:03	1

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

Lab Sample ID: 380-76545-7

Date Collected: 12/26/23 11:33

Matrix: Water

Date Received: 12/28/23 09:20

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	<10		10	ug/L			01/05/24 19:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		38 - 134		01/05/24 19:03	1

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

Lab Sample ID: 380-76545-8

Date Collected: 12/26/23 10:32

Matrix: Water

Date Received: 12/28/23 09:20

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	<10		10	ug/L			01/05/24 14:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		38 - 134		01/05/24 14:55	1

# Surrogate Summary

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

Job ID: 380-76545-2  
SDG: 8015, 625

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

Matrix: Drinking Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB1 (38-134)
380-76545-1	MOANALUA WELLS	94
380-76545-2	AIEA GULCH WELLS PUMP 2	89
380-76545-2 MS	AIEA GULCH WELLS PUMP 2	100
380-76545-2 MSD	AIEA GULCH WELLS PUMP 2	106
380-76545-3	AIEA WELLS PUMPS 1&2 (260) P2	91
380-76545-4	HALAWA WELLS UNITS 1 & 2 P1	87

#### Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

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

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB1 (38-134)
380-76545-5	TB MOANALUA WELLS	90
380-76545-6	TB AIEA GULCH WELLS PUMP 2	94
380-76545-7	TB AIEA WELLS PUMPS 1&2 (260) P2	93
380-76545-8	TB HALAWA WELLS UNITS 1 & 2 P1	91
LCS 570-398705/4	Lab Control Sample	99
LCSD 570-398705/5	Lab Control Sample Dup	105
MB 570-398705/6	Method Blank	89
MRL 570-398705/3	Lab Control Sample	92

#### Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

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

Matrix: Drinking Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	OTCSN1 (60-130)
380-76545-1	MOANALUA WELLS	100
380-76545-2	AIEA GULCH WELLS PUMP 2	97
380-76545-3	AIEA WELLS PUMPS 1&2 (260) P2	96
380-76545-4	HALAWA WELLS UNITS 1 & 2 P1	95

#### Surrogate Legend

OTCSN = n-Octacosane (Surr)

# Surrogate Summary

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

Job ID: 380-76545-2  
 SDG: 8015, 625

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

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	OTCSN1 (60-130)
LCS 570-397690/2-A	Lab Control Sample	107
LCSD 570-397690/3-A	Lab Control Sample Dup	104
MB 570-397690/1-A	Method Blank	94
MRL 570-397690/4-A	Lab Control Sample	100

#### Surrogate Legend

OTCSN = n-Octacosane (Surr)

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

Matrix: Drinking Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HF2PP1 (54-120)
380-76545-1	MOANALUA WELLS	100
380-76545-1 MS	MOANALUA WELLS	84
380-76545-1 MSD	MOANALUA WELLS	104
380-76545-2	AIEA GULCH WELLS PUMP 2	84
380-76545-3	AIEA WELLS PUMPS 1&2 (260) P2	79
380-76545-4	HALAWA WELLS UNITS 1 & 2 P1	82

#### Surrogate Legend

HF2PP = Hexafluoro-2-propanol (Surr)

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

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HF2PP1 (54-120)
LCS 570-399251/11	Lab Control Sample	96
LCSD 570-399251/12	Lab Control Sample Dup	78
MB 570-399251/10	Method Blank	79
MRL 570-399251/13	Lab Control Sample	99

#### Surrogate Legend

HF2PP = Hexafluoro-2-propanol (Surr)

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

Matrix: BlankMatrix

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

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)
113924-B1	Method Blank	87	93	87	81	93
113924-BS1	Lab Control Sample	64	86	96	57	91
113924-BS2	Lab Control Sample Dup	65	89	93	63	101

#### Surrogate Legend

(d10-Acenaphthene) = (d10-Acenaphthene)

(d10-Phenanthrene) = (d10-Phenanthrene)

CRY = (d12-Chrysene)

# Surrogate Summary

Client: City & County of Honolulu  
 Project/Site: RED-HILL  
 NPT = (d8-Naphthalene)  
 PRY = (d12-Perylene)

Job ID: 380-76545-2  
 SDG: 8015, 625

## 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)
380-76545-1	MOANALUA WELLS	62	81	80	57	84
380-76545-2	AIEA GULCH WELLS PUMP 2	73	82	79	72	105
380-76545-3	AIEA WELLS PUMPS 1&2 (260) P2	65	82	85	59	101
380-76545-4	HALAWA WELLS UNITS 1 & 2 P1	69	83	93	65	93

### Surrogate Legend

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



# QC Sample Results

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

Job ID: 380-76545-2  
SDG: 8015, 625

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

**Lab Sample ID: MB 570-398705/6**  
**Matrix: Water**  
**Analysis Batch: 398705**

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

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	<10		10	ug/L			01/05/24 12:52	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	89		38 - 134				01/05/24 12:52	1

**Lab Sample ID: LCS 570-398705/4**  
**Matrix: Water**  
**Analysis Batch: 398705**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (C4-C13)	400	358		ug/L		89	78 - 120
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	99		38 - 134				

**Lab Sample ID: LCSD 570-398705/5**  
**Matrix: Water**  
**Analysis Batch: 398705**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (C4-C13)	400	352		ug/L		88	78 - 120	2	10
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	105		38 - 134						

**Lab Sample ID: MRL 570-398705/3**  
**Matrix: Water**  
**Analysis Batch: 398705**

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (C4-C13)	10.0	13.8		ug/L		138	50 - 150
Surrogate	MRL %Recovery	MRL Qualifier	Limits				
4-Bromofluorobenzene (Surr)	92		38 - 134				

**Lab Sample ID: 380-76545-2 MS**  
**Matrix: Drinking Water**  
**Analysis Batch: 398705**

**Client Sample ID: AIEA GULCH WELLS PUMP 2**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (C4-C13)	<10		400	340		ug/L		85	68 - 122
Surrogate	MS %Recovery	MS Qualifier	Limits						
4-Bromofluorobenzene (Surr)	100		38 - 134						

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# QC Sample Results

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

Job ID: 380-76545-2  
SDG: 8015, 625

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

**Lab Sample ID: 380-76545-2 MSD**  
**Matrix: Drinking Water**  
**Analysis Batch: 398705**

**Client Sample ID: AIEA GULCH WELLS PUMP 2**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (C4-C13)	<10		400	341		ug/L		85	68 - 122	0	18
<b>Surrogate</b>	<b>%Recovery</b>	<b>MSD Qualifier</b>	<b>MSD Limits</b>								
4-Bromofluorobenzene (Surr)	106		38 - 134								

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

**Lab Sample ID: MB 570-397690/1-A**  
**Matrix: Water**  
**Analysis Batch: 398593**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 397690**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (C10-C24)	<25		25	ug/L		01/02/24 13:15	01/05/24 01:05	1
Motor Oil Range Organics [C24-C36]	<25		25	ug/L		01/02/24 13:15	01/05/24 01:05	1
C8-C18	<25		25	ug/L		01/02/24 13:15	01/05/24 01:05	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>MB Limits</b>	<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>		
n-Octacosane (Surr)	94		60 - 130	01/02/24 13:15	01/05/24 01:05	1		

**Lab Sample ID: LCS 570-397690/2-A**  
**Matrix: Water**  
**Analysis Batch: 398593**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 397690**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C10-C28	1600	1210		ug/L		76	56 - 127		
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>LCS Limits</b>						
n-Octacosane (Surr)	107		60 - 130						

**Lab Sample ID: LCSD 570-397690/3-A**  
**Matrix: Water**  
**Analysis Batch: 402355**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 397690**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C10-C28	1600	1590	*1	ug/L		99	56 - 127	27	23
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>LCSD Limits</b>						
n-Octacosane (Surr)	104		60 - 130						

**Lab Sample ID: MRL 570-397690/4-A**  
**Matrix: Water**  
**Analysis Batch: 398593**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 397690**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C10-C28	0.0200	<0.020		mg/L		95	50 - 150		

# QC Sample Results

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

Job ID: 380-76545-2  
SDG: 8015, 625

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

Lab Sample ID: MRL 570-397690/4-A  
Matrix: Water  
Analysis Batch: 398593

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 397690

Surrogate	%Recovery	MRL MRL Qualifier	Limits
<i>n</i> -Octacosane (Surr)	100		60 - 130

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

Lab Sample ID: MB 570-399251/10  
Matrix: Water  
Analysis Batch: 399251

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

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Ethanol	<0.10		0.10	mg/L			01/08/24 18:57	1
Surrogate	%Recovery	MB MB Qualifier	Limits	Prepared	Analyzed	Dil Fac		
Hexafluoro-2-propanol (Surr)	79		54 - 120		01/08/24 18:57	1		

Lab Sample ID: LCS 570-399251/11  
Matrix: Water  
Analysis Batch: 399251

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ethanol	2.00	1.91		mg/L		95	78 - 131
Surrogate	LCS LCS %Recovery Qualifier	Limits					
Hexafluoro-2-propanol (Surr)	96		54 - 120				

Lab Sample ID: LCSD 570-399251/12  
Matrix: Water  
Analysis Batch: 399251

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ethanol	2.00	1.97		mg/L		98	78 - 131	3	25
Surrogate	LCSD LCSD %Recovery Qualifier	Limits							
Hexafluoro-2-propanol (Surr)	78		54 - 120						

Lab Sample ID: MRL 570-399251/13  
Matrix: Water  
Analysis Batch: 399251

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Ethanol	0.100	0.116		mg/L		116	50 - 150
Surrogate	MRL MRL %Recovery Qualifier	Limits					
Hexafluoro-2-propanol (Surr)	99		54 - 120				

# QC Sample Results

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

Job ID: 380-76545-2  
SDG: 8015, 625

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

**Lab Sample ID: 380-76545-1 MS**  
**Matrix: Drinking Water**  
**Analysis Batch: 399251**

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ethanol	<0.10		2.00	1.95		mg/L		98	20 - 173
<b>Surrogate</b>	<b>%Recovery</b>	<b>MS Qualifier</b>	<b>MS Limits</b>						
Hexafluoro-2-propanol (Surr)	84		54 - 120						

**Lab Sample ID: 380-76545-1 MSD**  
**Matrix: Drinking Water**  
**Analysis Batch: 399251**

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ethanol	<0.10		2.00	2.13		mg/L		106	20 - 173	8	21
<b>Surrogate</b>	<b>%Recovery</b>	<b>MSD Qualifier</b>	<b>MSD Limits</b>								
Hexafluoro-2-propanol (Surr)	104		54 - 120								

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

**Lab Sample ID: 113924-B1**  
**Matrix: BlankMatrix**  
**Analysis Batch: O-44064**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: O-44064\_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 01:02	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 01:02	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 01:02	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 01:02	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 01:02	1
Acenaphthene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 01:02	1
Acenaphthylene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 01:02	1
Anthracene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 01:02	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 01:02	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 01:02	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 01:02	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 01:02	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 01:02	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 01:02	1
Biphenyl	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 01:02	1
Chrysene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 01:02	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 01:02	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 01:02	1
Dibenzothiophene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 01:02	1
Disalicylidenepranediamine	ND		0.1	0.05	µg/L		01/02/24 00:00	02/03/24 01:02	1
Fluoranthene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 01:02	1
Fluorene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 01:02	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 01:02	1
Naphthalene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 01:02	1
Perylene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 01:02	1
Phenanthrene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 01:02	1

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-76545-2  
SDG: 8015, 625

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

**Lab Sample ID: 113924-B1**  
**Matrix: BlankMatrix**  
**Analysis Batch: O-44064**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: O-44064\_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pyrene	ND		0.005	0.001	µg/L		01/02/24 00:00	02/03/24 01:02	1
Surrogate	Blank %Recovery	Blank Qualifier	Limits				Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	87		27 - 133				01/02/24 00:00	02/03/24 01:02	1
(d10-Phenanthrene)	93		43 - 129				01/02/24 00:00	02/03/24 01:02	1
(d12-Chrysene)	87		52 - 144				01/02/24 00:00	02/03/24 01:02	1
(d12-Perylene)	93		36 - 161				01/02/24 00:00	02/03/24 01:02	1
(d8-Naphthalene)	81		25 - 125				01/02/24 00:00	02/03/24 01:02	1

**Lab Sample ID: 113924-BS1**  
**Matrix: BlankMatrix**  
**Analysis Batch: O-44064**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: O-44064\_P**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1-Methylnaphthalene	0.5	0.282		µg/L		56	31 - 128
1-Methylphenanthrene	0.5	0.458		µg/L		92	66 - 127
2,3,5-Trimethylnaphthalene	0.5	0.353		µg/L		71	55 - 122
2,6-Dimethylnaphthalene	0.5	0.34		µg/L		68	48 - 120
2-Methylnaphthalene	0.5	0.329		µg/L		66	47 - 130
Acenaphthene	0.5	0.316		µg/L		63	53 - 131
Acenaphthylene	0.5	0.325		µg/L		65	43 - 140
Anthracene	0.5	0.41		µg/L		82	58 - 135
Benz[a]anthracene	0.5	0.415		µg/L		83	55 - 145
Benzo[a]pyrene	0.5	0.401		µg/L		80	51 - 143
Benzo[b]fluoranthene	0.5	0.572		µg/L		114	46 - 165
Benzo[e]pyrene	0.5	0.377		µg/L		75	42 - 152
Benzo[g,h,i]perylene	0.5	0.463		µg/L		93	63 - 133
Benzo[k]fluoranthene	0.5	0.448		µg/L		90	56 - 145
Biphenyl	0.5	0.346		µg/L		69	56 - 119
Chrysene	0.5	0.691		µg/L		138	56 - 141
Dibenz[a,h]anthracene	0.5	0.748		µg/L		150	55 - 150
Dibenzo[a,i]pyrene	0.5	0.255		µg/L		51	50 - 150
Dibenzothiophene	0.5	0.415		µg/L		83	46 - 126
Disalicylidenepropanediamine	50	48.8		µg/L		98	50 - 150
Fluoranthene	0.5	0.484		µg/L		97	60 - 146
Fluorene	0.5	0.412		µg/L		82	58 - 131
Indeno[1,2,3-cd]pyrene	0.5	0.719		µg/L		144	50 - 151
Naphthalene	0.5	0.277		µg/L		55	41 - 126
Perylene	0.5	0.429		µg/L		86	48 - 141
Phenanthrene	0.5	0.408		µg/L		82	67 - 127
Pyrene	0.5	0.399		µg/L		80	54 - 156
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
(d10-Acenaphthene)	64		27 - 133				
(d10-Phenanthrene)	86		43 - 129				
(d12-Chrysene)	96		52 - 144				
(d12-Perylene)	91		36 - 161				
(d8-Naphthalene)	57		25 - 125				

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-76545-2  
SDG: 8015, 625

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

**Lab Sample ID: 113924-BS2**  
**Matrix: BlankMatrix**  
**Analysis Batch: O-44064**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: O-44064\_P**

Analyte	Spike Added	LCS DUP Result	LCS DUP Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
1-Methylnaphthalene	0.5	0.288		µg/L		58	31 - 128	4	30	
1-Methylphenanthrene	0.5	0.45		µg/L		90	66 - 127	2	30	
2,3,5-Trimethylnaphthalene	0.5	0.36		µg/L		72	55 - 122	1	30	
2,6-Dimethylnaphthalene	0.5	0.359		µg/L		72	48 - 120	6	30	
2-Methylnaphthalene	0.5	0.344		µg/L		69	47 - 130	4	30	
Acenaphthene	0.5	0.326		µg/L		65	53 - 131	3	30	
Acenaphthylene	0.5	0.338		µg/L		68	43 - 140	5	30	
Anthracene	0.5	0.42		µg/L		84	58 - 135	2	30	
Benz[a]anthracene	0.5	0.398		µg/L		80	55 - 145	4	30	
Benzo[a]pyrene	0.5	0.414		µg/L		83	51 - 143	4	30	
Benzo[b]fluoranthene	0.5	0.571		µg/L		114	46 - 165	0	30	
Benzo[e]pyrene	0.5	0.373		µg/L		75	42 - 152	0	30	
Benzo[g,h,i]perylene	0.5	0.442		µg/L		88	63 - 133	6	30	
Benzo[k]fluoranthene	0.5	0.453		µg/L		91	56 - 145	1	30	
Biphenyl	0.5	0.36		µg/L		72	56 - 119	4	30	
Chrysene	0.5	0.659		µg/L		132	56 - 141	4	30	
Dibenz[a,h]anthracene	0.5	0.734		µg/L		147	55 - 150	2	30	
Dibenzo[a,l]pyrene	0.5	0.292		µg/L		58	50 - 150	13	30	
Dibenzothiophene	0.5	0.411		µg/L		82	46 - 126	1	30	
Disalicylideneprapanediamine	50	55.4		µg/L		111	50 - 150	12	30	
Fluoranthene	0.5	0.502		µg/L		100	60 - 146	3	30	
Fluorene	0.5	0.431		µg/L		86	58 - 131	5	30	
Indeno[1,2,3-cd]pyrene	0.5	0.685		µg/L		137	50 - 151	5	30	
Naphthalene	0.5	0.307		µg/L		61	41 - 126	10	30	
Perylene	0.5	0.463		µg/L		93	48 - 141	8	30	
Phenanthrene	0.5	0.419		µg/L		84	67 - 127	2	30	
Pyrene	0.5	0.4		µg/L		80	54 - 156	0	30	

Surrogate	LCS DUP		Limits
	%Recovery	Qualifier	
(d10-Acenaphthene)	65		27 - 133
(d10-Phenanthrene)	89		43 - 129
(d12-Chrysene)	93		52 - 144
(d12-Perylene)	101		36 - 161
(d8-Naphthalene)	63		25 - 125

# QC Association Summary

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

Job ID: 380-76545-2  
 SDG: 8015, 625

## GC VOA

### Analysis Batch: 398705

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-76545-1	MOANALUA WELLS	Total/NA	Drinking Water	8015B GRO LL	
380-76545-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	8015B GRO LL	
380-76545-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	8015B GRO LL	
380-76545-4	HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Drinking Water	8015B GRO LL	
380-76545-5	TB MOANALUA WELLS	Total/NA	Water	8015B GRO LL	
380-76545-6	TB AIEA GULCH WELLS PUMP 2	Total/NA	Water	8015B GRO LL	
380-76545-7	TB AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Water	8015B GRO LL	
380-76545-8	TB HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Water	8015B GRO LL	
MB 570-398705/6	Method Blank	Total/NA	Water	8015B GRO LL	
LCS 570-398705/4	Lab Control Sample	Total/NA	Water	8015B GRO LL	
LCSD 570-398705/5	Lab Control Sample Dup	Total/NA	Water	8015B GRO LL	
MRL 570-398705/3	Lab Control Sample	Total/NA	Water	8015B GRO LL	
380-76545-2 MS	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	8015B GRO LL	
380-76545-2 MSD	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	8015B GRO LL	

## GC Semi VOA

### Prep Batch: 397690

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-76545-1	MOANALUA WELLS	Total/NA	Drinking Water	3510C	
380-76545-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	3510C	
380-76545-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	3510C	
380-76545-4	HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Drinking Water	3510C	
MB 570-397690/1-A	Method Blank	Total/NA	Water	3510C	
LCS 570-397690/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 570-397690/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
MRL 570-397690/4-A	Lab Control Sample	Total/NA	Water	3510C	

### Analysis Batch: 398593

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-76545-1	MOANALUA WELLS	Total/NA	Drinking Water	8015B	397690
380-76545-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	8015B	397690
380-76545-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	8015B	397690
380-76545-4	HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Drinking Water	8015B	397690
MB 570-397690/1-A	Method Blank	Total/NA	Water	8015B	397690
LCS 570-397690/2-A	Lab Control Sample	Total/NA	Water	8015B	397690
MRL 570-397690/4-A	Lab Control Sample	Total/NA	Water	8015B	397690

### Analysis Batch: 399251

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-76545-1	MOANALUA WELLS	Total/NA	Drinking Water	8015B	
380-76545-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	8015B	
380-76545-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	8015B	
380-76545-4	HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Drinking Water	8015B	
MB 570-399251/10	Method Blank	Total/NA	Water	8015B	
LCS 570-399251/11	Lab Control Sample	Total/NA	Water	8015B	
LCSD 570-399251/12	Lab Control Sample Dup	Total/NA	Water	8015B	
MRL 570-399251/13	Lab Control Sample	Total/NA	Water	8015B	
380-76545-1 MS	MOANALUA WELLS	Total/NA	Drinking Water	8015B	
380-76545-1 MSD	MOANALUA WELLS	Total/NA	Drinking Water	8015B	

# QC Association Summary

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

Job ID: 380-76545-2  
 SDG: 8015, 625

## GC Semi VOA

### Analysis Batch: 402355

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 570-397690/3-A	Lab Control Sample Dup	Total/NA	Water	8015B	397690

## Subcontract

### Analysis Batch: O-44064

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-76545-1	MOANALUA WELLS	Total/NA	Drinking Water	625 PAH Physis LL (EAL) + TICs	O-44064_P
380-76545-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	625 PAH Physis LL (EAL) + TICs	O-44064_P
380-76545-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	625 PAH Physis LL (EAL) + TICs	O-44064_P
380-76545-4	HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Drinking Water	625 PAH Physis LL (EAL) + TICs	O-44064_P
113924-B1	Method Blank	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-44064_P
113924-BS1	Lab Control Sample	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-44064_P
113924-BS2	Lab Control Sample Dup	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-44064_P

### Prep Batch: O-44064\_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-76545-1	MOANALUA WELLS	Total/NA	Drinking Water	EPA_625	
380-76545-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	EPA_625	
380-76545-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	EPA_625	
380-76545-4	HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Drinking Water	EPA_625	
113924-B1	Method Blank	Total/NA	BlankMatrix	EPA_625	
113924-BS1	Lab Control Sample	Total/NA	BlankMatrix	EPA_625	
113924-BS2	Lab Control Sample Dup	Total/NA	BlankMatrix	EPA_625	

# Lab Chronicle

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

Job ID: 380-76545-2  
SDG: 8015, 625

## Client Sample ID: MOANALUA WELLS

Lab Sample ID: 380-76545-1

Date Collected: 12/26/23 10:04

Matrix: Drinking Water

Date Received: 12/28/23 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015B GRO LL		1	398705	A9VE	EET CAL 4	01/05/24 15:33
Total/NA	Prep	3510C			397690	JC	EET CAL 4	01/02/24 13:15
Total/NA	Analysis	8015B		1	398593	SP9M	EET CAL 4	01/05/24 05:17
Total/NA	Analysis	8015B		1	399251	J7WE	EET CAL 4	01/08/24 21:08
Total/NA	Prep	EPA_625		1	O-44064_P			01/02/24 00:00
Total/NA	Analysis	625 PAH Physis LL (EAL) + TICs		1	O-44064	YC		02/03/24 06:15

## Client Sample ID: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-76545-2

Date Collected: 12/26/23 11:06

Matrix: Drinking Water

Date Received: 12/28/23 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015B GRO LL		1	398705	A9VE	EET CAL 4	01/05/24 16:00
Total/NA	Prep	3510C			397690	JC	EET CAL 4	01/02/24 13:15
Total/NA	Analysis	8015B		1	398593	SP9M	EET CAL 4	01/05/24 05:38
Total/NA	Analysis	8015B		1	399251	J7WE	EET CAL 4	01/08/24 21:30
Total/NA	Prep	EPA_625		1	O-44064_P			01/02/24 00:00
Total/NA	Analysis	625 PAH Physis LL (EAL) + TICs		1	O-44064	YC		02/03/24 07:59

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

Lab Sample ID: 380-76545-3

Date Collected: 12/26/23 11:33

Matrix: Drinking Water

Date Received: 12/28/23 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015B GRO LL		1	398705	A9VE	EET CAL 4	01/05/24 16:26
Total/NA	Prep	3510C			397690	JC	EET CAL 4	01/02/24 13:15
Total/NA	Analysis	8015B		1	398593	SP9M	EET CAL 4	01/05/24 05:59
Total/NA	Analysis	8015B		1	399251	J7WE	EET CAL 4	01/08/24 21:51
Total/NA	Prep	EPA_625		1	O-44064_P			01/02/24 00:00
Total/NA	Analysis	625 PAH Physis LL (EAL) + TICs		1	O-44064	YC		02/03/24 09:43

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

Lab Sample ID: 380-76545-4

Date Collected: 12/26/23 10:32

Matrix: Drinking Water

Date Received: 12/28/23 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015B GRO LL		1	398705	A9VE	EET CAL 4	01/05/24 16:52
Total/NA	Prep	3510C			397690	JC	EET CAL 4	01/02/24 13:15
Total/NA	Analysis	8015B		1	398593	SP9M	EET CAL 4	01/05/24 06:20
Total/NA	Analysis	8015B		1	399251	J7WE	EET CAL 4	01/08/24 22:13
Total/NA	Prep	EPA_625		1	O-44064_P			01/02/24 00:00
Total/NA	Analysis	625 PAH Physis LL (EAL) + TICs		1	O-44064	YC		02/03/24 11:28

Eurofins Eaton Analytical Pomona



# Lab Chronicle

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

Job ID: 380-76545-2  
SDG: 8015, 625

## Client Sample ID: TB MOANALUA WELLS

Lab Sample ID: 380-76545-5

Date Collected: 12/26/23 10:04

Matrix: Water

Date Received: 12/28/23 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015B GRO LL		1	398705	A9VE	EET CAL 4	01/05/24 18:37

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

Lab Sample ID: 380-76545-6

Date Collected: 12/26/23 11:06

Matrix: Water

Date Received: 12/28/23 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015B GRO LL		1	398705	A9VE	EET CAL 4	01/05/24 14:03

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

Lab Sample ID: 380-76545-7

Date Collected: 12/26/23 11:33

Matrix: Water

Date Received: 12/28/23 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015B GRO LL		1	398705	A9VE	EET CAL 4	01/05/24 19:03

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

Lab Sample ID: 380-76545-8

Date Collected: 12/26/23 10:32

Matrix: Water

Date Received: 12/28/23 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015B GRO LL		1	398705	A9VE	EET CAL 4	01/05/24 14:55

### Laboratory References:

= Physis Environmental Laboratories, 1904 Wright Circle, Anaheim, CA 92806  
EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

# Accreditation/Certification Summary

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

Job ID: 380-76545-2  
SDG: 8015, 625

## Laboratory: Eurofins Calscience

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

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

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# Method Summary

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

Job ID: 380-76545-2  
SDG: 8015, 625

Method	Method Description	Protocol	Laboratory
8015B GRO LL	Gasoline Range Organics - (GC)	SW846	EET CAL 4
8015B	Diesel Range Organics (DRO) (GC) Low Level	SW846	EET CAL 4
8015B	Nonhalogenated Organic Compounds - Direct Injection (GC)	SW846	EET CAL 4
625	EPA 625 Base/Neutral and Acid Organics i	EPA	
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET CAL 4
5030C	Purge and Trap	SW846	EET CAL 4

### 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

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

# Sample Summary

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

Job ID: 380-76545-2  
 SDG: 8015, 625

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	PWSID Number
380-76545-1	MOANALUA WELLS	Drinking Water	12/26/23 10:04	12/28/23 09:20	HI0000331
380-76545-2	AIEA GULCH WELLS PUMP 2	Drinking Water	12/26/23 11:06	12/28/23 09:20	HI0000331
380-76545-3	AIEA WELLS PUMPS 1&2 (260) P2	Drinking Water	12/26/23 11:33	12/28/23 09:20	HI0000331
380-76545-4	HALAWA WELLS UNITS 1 & 2 P1	Drinking Water	12/26/23 10:32	12/28/23 09:20	HI0000331
380-76545-5	TB MOANALUA WELLS	Water	12/26/23 10:04	12/28/23 09:20	
380-76545-6	TB AIEA GULCH WELLS PUMP 2	Water	12/26/23 11:06	12/28/23 09:20	
380-76545-7	TB AIEA WELLS PUMPS 1&2 (260) P2	Water	12/26/23 11:33	12/28/23 09:20	
380-76545-8	TB HALAWA WELLS UNITS 1 & 2 P1	Water	12/26/23 10:32	12/28/23 09:20	

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February 05, 2024

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

Project Name: RED-HILL Project # 38001111 Job # 380-76545-1  
 Physis Project ID: 1407003-467

Dear Rachelle,

Enclosed are the analytical results for samples submitted to PHYSIS Environmental Laboratories, Inc. (PHYSIS) on 1/2/2024. A total of 4 samples were received for analysis in accordance with the attached chain of custody (COC). Per the COC, the samples were analyzed for:

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

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

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

Regards,

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



## PROJECT SAMPLE LIST

Eurofins Eaton Analytical

PHYSIS Project ID: 1407003-467

RED-HILL Project # 38001111 Job # 380-76545-1

Total Samples: 4

PHYSIS ID	Sample ID	Description	Date	Time	Matrix	Sample Type
113925	MOANALUA WELLS	380-76545-1	12/26/202	10:04	Samplewater	Not Specified
113926	AIEA GULCH WELLS PUMP 2	380-76545-2	12/26/202	11:06	Samplewater	Not Specified
113927	AIEA WELLS PUMPS 1&2 (260) P2	380-76545-3	12/26/202	11:33	Samplewater	Not Specified
113928	HALAWA WELLS UNITS 1 & 2 P1	380-76545-4	12/26/202	10:32	Samplewater	Not Specified

## ABBREVIATIONS and ACRONYMS

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

## QUALITY ASSURANCE SUMMARY

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

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

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

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

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

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

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

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

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

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



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

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

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

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

## PHYSIS QUALIFIER CODES

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

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## CASE NARRATIVE

### QUALIFIER NOTES

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

#### **ND**

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

# ANALYTICALS 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: 113925-R1 MOANALUA WELLS 380-76545-1 Matrix: Samplewater</b>											
Disalicylideneprapanediamine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-44064	02-Jan-24	03-Feb-24
<b>Sample ID: 113926-R1 AIEA GULCH WELLS PUMP 2 380-7 Matrix: Samplewater</b>											
Disalicylideneprapanediamine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-44064	02-Jan-24	03-Feb-24
<b>Sample ID: 113927-R1 AIEA WELLS PUMPS 1&amp;2 (260) P2 3 Matrix: Samplewater</b>											
Disalicylideneprapanediamine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-44064	02-Jan-24	03-Feb-24
<b>Sample ID: 113928-R1 HALAWA WELLS UNITS 1 &amp; 2 P1 38 Matrix: Samplewater</b>											
Disalicylideneprapanediamine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-44064	02-Jan-24	03-Feb-24

## Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
<b>Sample ID: 113925-R1</b>	<b>MOANALUA WELLS 380-76545-1</b>	<b>Matrix: Samplewater</b>					<b>Sampled: 26-Dec-23 10:04</b>			<b>Received: 02-Jan-24</b>	
(d10-Acenaphthene)	EPA 625.1	% Recovery	62	1			Total		O-44064	02-Jan-24	03-Feb-24
(d10-Phenanthrene)	EPA 625.1	% Recovery	81	1			Total		O-44064	02-Jan-24	03-Feb-24
(d12-Chrysene)	EPA 625.1	% Recovery	80	1			Total		O-44064	02-Jan-24	03-Feb-24
(d12-Perylene)	EPA 625.1	% Recovery	84	1			Total		O-44064	02-Jan-24	03-Feb-24
(d8-Naphthalene)	EPA 625.1	% Recovery	57	1			Total		O-44064	02-Jan-24	03-Feb-24
1-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
1-Methylphenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
2,3,5-Trimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
2,6-Dimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
2-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Acenaphthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Acenaphthylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Benz[a]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Benzo[a]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Benzo[b]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Benzo[e]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Benzo[g,h,i]perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Benzo[k]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Biphenyl	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Chrysene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Dibenz[a,h]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Dibenzo[a,l]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Dibenzothiophene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24

## 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-44064	02-Jan-24	03-Feb-24
Fluorene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Indeno[1,2,3-cd]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Naphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Phenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24

## Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
<b>Sample ID: 113926-R1</b>	<b>AIEA GULCH WELLS PUMP 2 380-7 Matrix: Samplewater</b>						<b>Sampled:</b>	<b>26-Dec-23 11:06</b>	<b>Received:</b>	<b>02-Jan-24</b>	
(d10-Acenaphthene)	EPA 625.1	% Recovery	73	1			Total	O-44064	02-Jan-24	03-Feb-24	
(d10-Phenanthrene)	EPA 625.1	% Recovery	82	1			Total	O-44064	02-Jan-24	03-Feb-24	
(d12-Chrysene)	EPA 625.1	% Recovery	79	1			Total	O-44064	02-Jan-24	03-Feb-24	
(d12-Perylene)	EPA 625.1	% Recovery	105	1			Total	O-44064	02-Jan-24	03-Feb-24	
(d8-Naphthalene)	EPA 625.1	% Recovery	72	1			Total	O-44064	02-Jan-24	03-Feb-24	
1-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44064	02-Jan-24	03-Feb-24	
1-Methylphenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44064	02-Jan-24	03-Feb-24	
2,3,5-Trimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44064	02-Jan-24	03-Feb-24	
2,6-Dimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44064	02-Jan-24	03-Feb-24	
2-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44064	02-Jan-24	03-Feb-24	
Acenaphthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44064	02-Jan-24	03-Feb-24	
Acenaphthylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44064	02-Jan-24	03-Feb-24	
Anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44064	02-Jan-24	03-Feb-24	
Benz[a]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44064	02-Jan-24	03-Feb-24	
Benzo[a]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44064	02-Jan-24	03-Feb-24	
Benzo[b]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44064	02-Jan-24	03-Feb-24	
Benzo[e]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44064	02-Jan-24	03-Feb-24	
Benzo[g,h,i]perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44064	02-Jan-24	03-Feb-24	
Benzo[k]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44064	02-Jan-24	03-Feb-24	
Biphenyl	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44064	02-Jan-24	03-Feb-24	
Chrysene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44064	02-Jan-24	03-Feb-24	
Dibenz[a,h]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44064	02-Jan-24	03-Feb-24	
Dibenzo[a,l]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44064	02-Jan-24	03-Feb-24	
Dibenzothiophene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44064	02-Jan-24	03-Feb-24	



## 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-44064	02-Jan-24	03-Feb-24
Fluorene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Indeno[1,2,3-cd]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Naphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Phenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24



## Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
<b>Sample ID: 113927-R1</b>	<b>AIEA WELLS PUMPS 1&amp;2 (260) P2 3 Matrix: Samplewater</b>						<b>Sampled: 26-Dec-23 11:33</b>		<b>Received: 02-Jan-24</b>		
(d10-Acenaphthene)	EPA 625.1	% Recovery	65	1			Total		O-44064	02-Jan-24	03-Feb-24
(d10-Phenanthrene)	EPA 625.1	% Recovery	82	1			Total		O-44064	02-Jan-24	03-Feb-24
(d12-Chrysene)	EPA 625.1	% Recovery	85	1			Total		O-44064	02-Jan-24	03-Feb-24
(d12-Perylene)	EPA 625.1	% Recovery	101	1			Total		O-44064	02-Jan-24	03-Feb-24
(d8-Naphthalene)	EPA 625.1	% Recovery	59	1			Total		O-44064	02-Jan-24	03-Feb-24
1-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
1-Methylphenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
2,3,5-Trimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
2,6-Dimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
2-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Acenaphthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Acenaphthylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Benz[a]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Benzo[a]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Benzo[b]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Benzo[e]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Benzo[g,h,i]perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Benzo[k]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Biphenyl	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Chrysene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Dibenz[a,h]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Dibenzo[a,l]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Dibenzothiophene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24

## 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-44064	02-Jan-24	03-Feb-24
Fluorene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Indeno[1,2,3-cd]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Naphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Phenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24



## Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
<b>Sample ID: 113928-R1</b>	<b>HALAWA WELLS UNITS 1 &amp; 2 P1 38 Matrix: Samplewater</b>						<b>Sampled: 26-Dec-23 10:32</b>		<b>Received: 02-Jan-24</b>		
(d10-Acenaphthene)	EPA 625.1	% Recovery	69	1			Total		O-44064	02-Jan-24	03-Feb-24
(d10-Phenanthrene)	EPA 625.1	% Recovery	83	1			Total		O-44064	02-Jan-24	03-Feb-24
(d12-Chrysene)	EPA 625.1	% Recovery	93	1			Total		O-44064	02-Jan-24	03-Feb-24
(d12-Perylene)	EPA 625.1	% Recovery	93	1			Total		O-44064	02-Jan-24	03-Feb-24
(d8-Naphthalene)	EPA 625.1	% Recovery	65	1			Total		O-44064	02-Jan-24	03-Feb-24
1-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
1-Methylphenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
2,3,5-Trimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
2,6-Dimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
2-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Acenaphthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Acenaphthylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Benz[a]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Benzo[a]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Benzo[b]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Benzo[e]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Benzo[g,h,i]perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Benzo[k]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Biphenyl	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Chrysene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Dibenz[a,h]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Dibenzo[a,l]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Dibenzothiophene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24

### 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-44064	02-Jan-24	03-Feb-24
Fluorene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Indeno[1,2,3-cd]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Naphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Phenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24
Pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44064	02-Jan-24	03-Feb-24



# QUALITY CONTROL REPORT

TERRA ENVIRONMENTAL LABORATORIES, INC. AURA

*Innovative Solutions for Nature*

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## Base/Neutral Extractable Compounds

## QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY		PRECISION		QA CODEc
							LEVEL	RESULT	%	LIMITS	%	LIMITS	
<b>Sample ID: 113924-B1</b>		<b>QAQC Procedural Blank</b>			<b>Matrix: BlankMatrix</b>			<b>Sampled:</b>		<b>Received:</b>			
		Method: EPA 625.1			Batch ID: O-44064			Prepared: 02-Jan-24		Analyzed: 03-Feb-24			
Disalicylidenepropanediamin	Total	ND	1	0.05	0.1	µg/L							
<b>Sample ID: 113924-BS1</b>		<b>QAQC Procedural Blank</b>			<b>Matrix: BlankMatrix</b>			<b>Sampled:</b>		<b>Received:</b>			
		Method: EPA 625.1			Batch ID: O-44064			Prepared: 02-Jan-24		Analyzed: 03-Feb-24			
Disalicylidenepropanediamin	Total	48.8	1	0.05	0.1	µg/L	50	0	98	50 - 150%	PASS		
<b>Sample ID: 113924-BS2</b>		<b>QAQC Procedural Blank</b>			<b>Matrix: BlankMatrix</b>			<b>Sampled:</b>		<b>Received:</b>			
		Method: EPA 625.1			Batch ID: O-44064			Prepared: 02-Jan-24		Analyzed: 03-Feb-24			
Disalicylidenepropanediamin	Total	55.4	1	0.05	0.1	µg/L	50	0	111	50 - 150%	PASS	12	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: 113924-B1</b>		<b>QAQC Procedural Blank</b>			<b>Matrix: BlankMatrix</b>		<b>Sampled:</b>		<b>Received:</b>		
		Method: EPA 625.1				Batch ID: O-44064	Prepared: 02-Jan-24		Analyzed: 03-Feb-24		
(d10-Acenaphthene)	Total	87	1			% Recovery	100	87	27 - 133%	PASS	
(d10-Phenanthrene)	Total	93	1			% Recovery	100	93	43 - 129%	PASS	
(d12-Chrysene)	Total	87	1			% Recovery	100	87	52 - 144%	PASS	
(d12-Perylene)	Total	93	1			% Recovery	100	93	36 - 161%	PASS	
(d8-Naphthalene)	Total	81	1			% Recovery	100	81	25 - 125%	PASS	
1-Methylnaphthalene	Total	ND	1	0.001	0.005	µg/L					
1-Methylphenanthrene	Total	ND	1	0.001	0.005	µg/L					
2,3,5-Trimethylnaphthalene	Total	ND	1	0.001	0.005	µg/L					
2,6-Dimethylnaphthalene	Total	ND	1	0.001	0.005	µg/L					
2-Methylnaphthalene	Total	ND	1	0.001	0.005	µg/L					
Acenaphthene	Total	ND	1	0.001	0.005	µg/L					
Acenaphthylene	Total	ND	1	0.001	0.005	µg/L					
Anthracene	Total	ND	1	0.001	0.005	µg/L					
Benz[a]anthracene	Total	ND	1	0.001	0.005	µg/L					
Benzo[a]pyrene	Total	ND	1	0.001	0.005	µg/L					
Benzo[b]fluoranthene	Total	ND	1	0.001	0.005	µg/L					
Benzo[e]pyrene	Total	ND	1	0.001	0.005	µg/L					
Benzo[g,h,i]perylene	Total	ND	1	0.001	0.005	µg/L					
Benzo[k]fluoranthene	Total	ND	1	0.001	0.005	µg/L					
Biphenyl	Total	ND	1	0.001	0.005	µg/L					
Chrysene	Total	ND	1	0.001	0.005	µg/L					
Dibenz[a,h]anthracene	Total	ND	1	0.001	0.005	µg/L					
Dibenzo[a,l]pyrene	Total	ND	1	0.001	0.005	µg/L					



## Polynuclear Aromatic Hydrocarbons

## QUALITY CONTROL REPORT

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



## Polynuclear Aromatic Hydrocarbons

## QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY	PRECISION	QA CODEc	
							LEVEL	RESULT	% LIMITS	% LIMITS		
<b>Sample ID: 113924-BS1</b>		<b>QAQC Procedural Blank</b>			<b>Matrix: BlankMatrix</b>			<b>Sampled:</b>		<b>Received:</b>		
Method: EPA 625.1		Batch ID: O-44064			Prepared: 02-Jan-24		Analyzed: 03-Feb-24					
(d10-Acenaphthene)	Total	64	1			% Recovery	100	0	64	27 - 133%	PASS	
(d10-Phenanthrene)	Total	86	1			% Recovery	100	0	86	43 - 129%	PASS	
(d12-Chrysene)	Total	96	1			% Recovery	100	0	96	52 - 144%	PASS	
(d12-Perylene)	Total	91	1			% Recovery	100	0	91	36 - 161%	PASS	
(d8-Naphthalene)	Total	57	1			% Recovery	100	0	57	25 - 125%	PASS	
1-Methylnaphthalene	Total	0.282	1	0.001	0.005	µg/L	0.5	0	56	31 - 128%	PASS	
1-Methylphenanthrene	Total	0.458	1	0.001	0.005	µg/L	0.5	0	92	66 - 127%	PASS	
2,3,5-Trimethylnaphthalene	Total	0.353	1	0.001	0.005	µg/L	0.5	0	71	55 - 122%	PASS	
2,6-Dimethylnaphthalene	Total	0.34	1	0.001	0.005	µg/L	0.5	0	68	48 - 120%	PASS	
2-Methylnaphthalene	Total	0.329	1	0.001	0.005	µg/L	0.5	0	66	47 - 130%	PASS	
Acenaphthene	Total	0.316	1	0.001	0.005	µg/L	0.5	0	63	53 - 131%	PASS	
Acenaphthylene	Total	0.325	1	0.001	0.005	µg/L	0.5	0	65	43 - 140%	PASS	
Anthracene	Total	0.41	1	0.001	0.005	µg/L	0.5	0	82	58 - 135%	PASS	
Benz[a]anthracene	Total	0.415	1	0.001	0.005	µg/L	0.5	0	83	55 - 145%	PASS	
Benzo[a]pyrene	Total	0.401	1	0.001	0.005	µg/L	0.5	0	80	51 - 143%	PASS	
Benzo[b]fluoranthene	Total	0.572	1	0.001	0.005	µg/L	0.5	0	114	46 - 165%	PASS	
Benzo[e]pyrene	Total	0.377	1	0.001	0.005	µg/L	0.5	0	75	42 - 152%	PASS	
Benzo[g,h,i]perylene	Total	0.463	1	0.001	0.005	µg/L	0.5	0	93	63 - 133%	PASS	
Benzo[k]fluoranthene	Total	0.448	1	0.001	0.005	µg/L	0.5	0	90	56 - 145%	PASS	
Biphenyl	Total	0.346	1	0.001	0.005	µg/L	0.5	0	69	56 - 119%	PASS	
Chrysene	Total	0.691	1	0.001	0.005	µg/L	0.5	0	138	56 - 141%	PASS	
Dibenz[a,h]anthracene	Total	0.748	1	0.001	0.005	µg/L	0.5	0	150	55 - 150%	PASS	
Dibenzo[a,l]pyrene	Total	0.255	1	0.001	0.005	µg/L	0.5	0	51	50 - 150%	PASS	

## Polynuclear Aromatic Hydrocarbons

## QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY		PRECISION		QA CODEc
							LEVEL	RESULT	%	LIMITS	%	LIMITS	
Dibenzothiophene	Total	0.415	1	0.001	0.005	µg/L	0.5	0	83	46 - 126%	PASS		
Fluoranthene	Total	0.484	1	0.001	0.005	µg/L	0.5	0	97	60 - 146%	PASS		
Fluorene	Total	0.412	1	0.001	0.005	µg/L	0.5	0	82	58 - 131%	PASS		
Indeno[1,2,3-cd]pyrene	Total	0.719	1	0.001	0.005	µg/L	0.5	0	144	50 - 151%	PASS		
Naphthalene	Total	0.277	1	0.001	0.005	µg/L	0.5	0	55	41 - 126%	PASS		
Perylene	Total	0.429	1	0.001	0.005	µg/L	0.5	0	86	48 - 141%	PASS		
Phenanthrene	Total	0.408	1	0.001	0.005	µg/L	0.5	0	82	67 - 127%	PASS		
Pyrene	Total	0.399	1	0.001	0.005	µg/L	0.5	0	80	54 - 156%	PASS		



## Polynuclear Aromatic Hydrocarbons

## QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY		PRECISION		QA CODEc		
							LEVEL	RESULT	%	LIMITS	%	LIMITS			
<b>Sample ID: 113924-BS2</b>		<b>QAQC Procedural Blank</b>			<b>Matrix: BlankMatrix</b>			<b>Sampled:</b>			<b>Received:</b>				
		Method: EPA 625.1			Batch ID: O-44064			Prepared: 02-Jan-24			Analyzed: 03-Feb-24				
(d10-Acenaphthene)	Total	65	1				% Recovery	100	0	65	27 - 133%	PASS	2	30	PASS
(d10-Phenanthrene)	Total	89	1				% Recovery	100	0	89	43 - 129%	PASS	3	30	PASS
(d12-Chrysene)	Total	93	1				% Recovery	100	0	93	52 - 144%	PASS	3	30	PASS
(d12-Perylene)	Total	101	1				% Recovery	100	0	101	36 - 161%	PASS	10	30	PASS
(d8-Naphthalene)	Total	63	1				% Recovery	100	0	63	25 - 125%	PASS	10	30	PASS
1-Methylnaphthalene	Total	0.288	1	0.001	0.005	µg/L		0.5	0	58	31 - 128%	PASS	4	30	PASS
1-Methylphenanthrene	Total	0.45	1	0.001	0.005	µg/L		0.5	0	90	66 - 127%	PASS	2	30	PASS
2,3,5-Trimethylnaphthalene	Total	0.36	1	0.001	0.005	µg/L		0.5	0	72	55 - 122%	PASS	1	30	PASS
2,6-Dimethylnaphthalene	Total	0.359	1	0.001	0.005	µg/L		0.5	0	72	48 - 120%	PASS	6	30	PASS
2-Methylnaphthalene	Total	0.344	1	0.001	0.005	µg/L		0.5	0	69	47 - 130%	PASS	4	30	PASS
Acenaphthene	Total	0.326	1	0.001	0.005	µg/L		0.5	0	65	53 - 131%	PASS	3	30	PASS
Acenaphthylene	Total	0.338	1	0.001	0.005	µg/L		0.5	0	68	43 - 140%	PASS	5	30	PASS
Anthracene	Total	0.42	1	0.001	0.005	µg/L		0.5	0	84	58 - 135%	PASS	2	30	PASS
Benz[a]anthracene	Total	0.398	1	0.001	0.005	µg/L		0.5	0	80	55 - 145%	PASS	4	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	0.571	1	0.001	0.005	µg/L		0.5	0	114	46 - 165%	PASS	0	30	PASS
Benzo[e]pyrene	Total	0.373	1	0.001	0.005	µg/L		0.5	0	75	42 - 152%	PASS	0	30	PASS
Benzo[g,h,i]perylene	Total	0.442	1	0.001	0.005	µg/L		0.5	0	88	63 - 133%	PASS	6	30	PASS
Benzo[k]fluoranthene	Total	0.453	1	0.001	0.005	µg/L		0.5	0	91	56 - 145%	PASS	1	30	PASS
Biphenyl	Total	0.36	1	0.001	0.005	µg/L		0.5	0	72	56 - 119%	PASS	4	30	PASS
Chrysene	Total	0.659	1	0.001	0.005	µg/L		0.5	0	132	56 - 141%	PASS	4	30	PASS
Dibenz[a,h]anthracene	Total	0.734	1	0.001	0.005	µg/L		0.5	0	147	55 - 150%	PASS	2	30	PASS
Dibenzo[a,l]pyrene	Total	0.292	1	0.001	0.005	µg/L		0.5	0	58	50 - 150%	PASS	13	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		
Dibenzothiophene	Total	0.411	1	0.001	0.005	µg/L	0.5	0	82	46 - 126%	PASS	1	30	PASS
Fluoranthene	Total	0.502	1	0.001	0.005	µg/L	0.5	0	100	60 - 146%	PASS	3	30	PASS
Fluorene	Total	0.431	1	0.001	0.005	µg/L	0.5	0	86	58 - 131%	PASS	5	30	PASS
Indeno[1,2,3-cd]pyrene	Total	0.685	1	0.001	0.005	µg/L	0.5	0	137	50 - 151%	PASS	5	30	PASS
Naphthalene	Total	0.307	1	0.001	0.005	µg/L	0.5	0	61	41 - 126%	PASS	10	30	PASS
Perylene	Total	0.463	1	0.001	0.005	µg/L	0.5	0	93	48 - 141%	PASS	8	30	PASS
Phenanthrene	Total	0.419	1	0.001	0.005	µg/L	0.5	0	84	67 - 127%	PASS	2	30	PASS
Pyrene	Total	0.4	1	0.001	0.005	µg/L	0.5	0	80	54 - 156%	PASS	0	30	PASS

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# PHYSIS

**TENTATIVELY IDENTIFIED COMPOUNDS**

ENVIRONMENTAL LABORATORIES, INC.

*Innovative Solutions for Nature*

Sample ID: 113928

Retention Time	Area (% of total)	Concentration (ng/L)	Library/ID	Cas Number	Match Quality (%)
32.7431	3.0805	1111	Anthracene-D10-	1719-06-8	93
25.1237	7.3144	2638	Diethyl Phthalate	84-66-2	98
11.6041	0.9470	342	1,5-Heptadien-4-one, 3,3,6-trimethyl-	546-49-6	81
11.0294	0.7760	280	2-(Chloromethyl)tetrahydropyran	18420-41-2	83
11.8795	0.5521	199	Nonane, 4-ethyl-5-methyl-	1632-71-9	86
12.6941	0.5440	196	Cyclooctane, cyclohexyl-	92369-78-3	89
13.0583	0.4009	145	Cyclohexane, octyl-	1795-15-9	92
13.5348	0.3692	133	Cyclohexaneethanol	4442-79-9	81
12.5524	0.2449	88	Cyclohexane, 3-ethyl-5-methyl-1-propyl-	1000151-39-5	86
12.0800	0.1337	48	Octane, 3,4-dimethyl-	15869-92-8	93
29.4307	0.1185	43	Benzoic acid, 2-ethylhexyl ester	5444-75-7	80
12.1249	0.1049	38	Heptane, 2,3-dimethyl-	3074-71-3	85
17.6890	0.1038	37	Propanoic acid, 2-methyl-, 3-hydroxy-2,2,4-trimethylpentyl ester	77-68-9	84
14.3020	0.0915	33	Cyclopentane, 1-methyl-2-(2-propenyl)-, trans-	50746-53-7	80
10.1793	0.0863	31	Oxalic acid, cyclohexyl propyl ester	1000309-30-3	85
12.3304	0.0110	4	5H-Tetrazol-5-amine	1000273-02-0	85
29.0165	0.0020	1	5,6,8,3',4'-Pentahydroxy-7-methoxyflavone	103633-25-6	82

Concentration estimated using the response for Anthracene-d10

Sample ID: 113927

Retention Time	Area (% of total)	Concentration (ng/L)	Library/ID	Cas Number	Match Quality (%)
32.7392	2.9181	1111	Anthracene-D10-	1719-06-8	84
25.1235	2.6215	998	Diethyl Phthalate	84-66-2	99
12.6923	0.4586	175	Cyclopentane, 1-methyl-3-(1-methylethyl)-	53771-88-3	85
11.6010	0.3895	148	1,5-Heptadien-4-one, 3,3,6-trimethyl-	546-49-6	81
11.6009	0.3625	138	2,6-Octadiene, 2,4-dimethyl-	63843-03-8	82
11.8573	0.3581	136	Nonane, 4-ethyl-5-methyl-	1632-71-9	93
11.8680	0.3542	135	Octane, 4,5-diethyl-	1636-41-5	92
13.0576	0.3417	130	Cyclohexane, octyl-	1795-15-9	92
13.5318	0.2565	98	Cyclohexaneethanol	4442-79-9	81
12.5534	0.2440	93	Cyclohexane, 3-ethyl-5-methyl-1-propyl-	1000151-39-5	86

Concentration estimated using the response for Anthracene-d10



Sample ID: 113925

Retention Time	Area (% of total)	Concentration (ng/L)	Library/ID	Cas Number	Match Quality (%)
32.7373	3.5046	1111	Anthracene-D10-	1517-22-2	82
25.1222	2.3555	747	Diethyl Phthalate	84-66-2	97
11.6049	0.8993	285	1,5-Heptadien-4-one, 3,3,6-trimethyl-	546-49-6	82
11.0296	0.7380	234	2-(Chloromethyl)tetrahydropyran	18420-41-2	83
12.6987	0.6015	191	Cyclooctane, cyclohexyl-	92369-78-3	83
10.7991	0.4594	146	Hexane, 3-bromo-	3377-87-5	84
10.7990	0.4578	145	2H-Pyran-2-methanol, tetrahydro-	100-72-1	82
13.0593	0.4430	140	Cyclohexane, octyl-	1795-15-9	89
29.4322	0.4094	130	Benzoic acid, 2-ethylhexyl ester	5444-75-7	89
17.6963	0.3290	104	Propanoic acid, 2-methyl-, 3-hydroxy-2,2,4-trimethylpentyl ester	77-68-9	91
13.5343	0.3261	103	Cyclohexaneethanol	4442-79-9	83
11.8700	0.3193	101	Hexane, 2,3,5-trimethyl-	1069-53-0	89
13.5340	0.3175	101	Cyclopentane, 1-methyl-2-(2-propenyl)-, trans-	50746-53-7	82
12.5529	0.3107	98	Cyclohexane, 3-ethyl-5-methyl-1-propyl-	1000151-39-5	87
17.6964	0.3099	98	Propanoic acid, 2-methyl-, 3-hydroxy-2,2,4-trimethylpentyl ester	77-68-9	91

Concentration estimated using the response for Anthracene-d10

Sample ID: 113926

Retention Time	Area (% of total)	Concentration (ng/L)	Library/ID	Cas Number	Match Quality (%)
32.7582	2.3826	1111	Anthracene-D10-	1719-06-8	86
25.1283	4.6263	2157	Diethyl Phthalate	84-66-2	99
11.6100	1.9079	890	3,3-Dimethylacryloyl chloride	3350-78-5	82
11.6100	1.9039	888	1,5-Heptadien-4-one, 3,3,6-trimethyl-	546-49-6	83
11.0352	1.8147	846	2-(Chloromethyl)tetrahydropyran	18420-41-2	83
10.1158	1.4486	676	5-Amino-2-methyl-2H-tetrazole	1553840	91
12.7041	0.3592	168	Cyclohexane, (1,2-dimethylpropyl)-	51284-29-8	83
13.0633	0.3333	155	Cyclohexane, octyl-	1795-15-9	90

Concentration estimated using the response for Anthracene-d10

Sample ID: Lab Blank B1\_44064

Retention Time	Area (% of total)	Concentration (ng/L)	Library/ID	Cas Number	Match Quality (%)
32.7614	2.7782	1111	Anthracene-D10-	1719-06-8	93
11.6104	1.8386	735	1,5-Heptadien-4-one, 3,3,6-trimethyl-	546-49-6	83
11.0353	1.5959	638	2-(Chloromethyl)tetrahydropyran	18420-41-2	84
12.7031	0.5861	234	Cyclopentane, 1-methyl-3-(1-methylethyl)-	53771-88-3	87
13.0630	0.3946	158	Cyclohexane, octyl-	1795-15-9	90
13.5386	0.2627	105	Cyclohexaneethanol	4442-79-9	81

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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# Eurofins Eaton Analytical Pomona

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



## Chain of Custody Record

<b>Client Information (Sub Contract Lab)</b>	Sampler:	Lab PM:	Carrier Tracking No(s):	COC No:
Client Contact: <b>Shipping/Receiving</b>	Phone:	Arada, Rachelle		380-97497.1
Company: <b>Physis Environmental Laboratories</b>		E-Mail: <b>Rachelle.Arada@eurofins.com</b>	State of Origin: <b>Hawaii</b>	Page: <b>1 of 1</b>
Address: <b>1904 Wright Circle,</b>	Due Date Requested: <b>11/01/2024</b>	Accreditations Required (See note): <b>State - Hawaii</b>		Job #: <b>380-76545-1</b>
City: <b>Anaheim</b>	TAT Requested (days):			
State, Zip: <b>CA, 92806</b>				
Phone:	PO #:			
Email:	MO #:			
Project Name: <b>RED-HILL</b>	Project #:			
Site: <b>Honolulu BWS Sites</b>	SSOW#:			

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (G=comp, G=grab)	Matrix (Water, Seawater, Other)	Preservation Code:	Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		Total Number of containers	Special Instructions/Note:
						Field Filtered	MS/MSD	Sub	Physis		
MOANAL UA WELLS (380-76545-1)	12/26/23	10:04		Water						2	See Attached Instructions
ALFA GULCH WELLS PUMP 2 (380-76545-2)	12/26/23	11:06		Water						2	See Attached Instructions
ALFA WELLS PUMPS 1&2 (260) P2 (380-76545-3)	12/26/23	11:33		Water						2	See Attached Instructions
HALAWA WELLS UNITS 1 & 2 P1 (380-76545-4)	12/26/23	10:32		Water						2	See Attached Instructions

**Analysis Requested**

Sub (625 PAH Physis LL (EAL) + TICs)/ 625 PAH Physis LL (EAL) + TICs

Preservation Codes:

- A - HCL
- B - NaOH
- C - Zn Acetate
- D - Nitric Acid
- E - NaHSO4
- F - MeOH
- G - Amchlor
- H - Ascorbic Acid
- I - Ice
- J - DI Water
- K - EDTA
- L - EDTA
- M - Hexane
- N - None
- O - AsNaO2
- P - Na2O4S
- Q - Na2SO3
- R - Na2S2O3
- S - H2SO4
- T - TSP Dodecahydrate
- U - Acetone
- V - MCAA
- W - pH 4.5
- Y - Trizma
- Z - other (specify)

**Relinquished by:** *Murkhyntia* Date/Time: *12/29/23 11:52* Company: *DCS*

**Relinquished by:** *RUBEN GALERA* Date/Time: *12/29/23 11:52* Company: *DCS*

**Relinquished by:** *RUBEN GALERA* Date/Time: *12/29/23 11:52* Company: *PHYSIS*

**Special Instructions/Note:**

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Return To Client  Disposal By Lab  Archive For \_\_\_\_\_ Months

Special Instructions/QC Requirements:

**Primary Deliverable Rank: 2**

**Deliverable Requested: I, II, III, IV, Other (specify)**

**Empty Kit Relinquished by:** \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Method of Shipment: \_\_\_\_\_

**Cooler Temperature(s) °C and Other Remarks:**



Project Iteration ID: 1407003-467  
 Client Name: Eurofins Eaton Analytical  
 Project Name: RED-HILL Project # 38001111 Job # 380-76545-1  
 COC Page Number: 2 of 2  
 Bottle Label Color: NA

## Sample Receipt Summary

### Receiving Info

- Initials Received By: JK
- Date Received: 12/29/23
- Time Received: 1155
- Client Name: Eurofins
- Courier Information: (Please circle)
  - Client
    - UPS
    - Area Fast
    - DRS
  - FedEx
    - GSO/GLS
    - Ontrac
    - 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): 39  
 Used I/R Thermometer # 1-2

DCS

### Inspection Info

- Initials Inspected By: RGH

### 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:

Monrovia, CA (Suite 100)  
 750 Royal Oaks Drive Suite 100  
 Monrovia CA 91016  
 Phone (626) 366-1100

### Chain of Custody Record

eurofins

<b>Client Information</b> Client Contact: Dr Ron Fenstermacher Company: PWSID City & County of Honolulu Address: 630 South Beretania Street, Chemistry Lab City: Honolulu State: HI, Zip: 96843 Phone: 808-748-5091 (tel) Email: rfenstermacher@hbws.org Project Name: RED-HILL/HBWS sites Event Desc: RUSH Weekly Red Hill Site:		Lab PM: Arada, Rachelle E-Mail: Rachelle.Arada@et.eurofins.com Carrier Tracking No(s): State of Origin:		COC No: 380-27941-2757 2 Page: Page 1 of 2 Job #:	
Due Date Requested: TAT Requested (days): Compliance Project: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes PO #: C20525101 exp 05312023 WO #:		<b>Analysis Requested</b> SUBCONTRACT - 625 PAH Physis LL (EAL) + TICs SUBCONTRACT - 6015 Gas (Purgeable) LL (EAL) SUBCONTRACT - 6915 Diesel LL (EAL) and Motor Oil SUBCONTRACT - (MOD) 525plus PLUS TICs SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL) SUBCONTRACT - 537 1 DW_PREC - 537 1 Full List 533 - All Analytes			
Sample Identification MOANALUA WELLS AIEA GULCH WELLS PUMP2 AIEA WELLS PUMPS 1&2 (260) P2 HALAWA WELLS UNITS 1&2 P1	Sample Date 26-Dec-2023 26-Dec-2023 26-Dec-2023 26-Dec-2023	Sample Time 1004 1106 1133 1032	Sample Type (C=Comp, G=grab) Preservation Code G G G G	Matrix (w=water, s=solid, o=washbill, t=tissue, h=hair) Water Water Water Water	Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> SUBCONTRACT - 625 PAH Physis LL (EAL) + TICs SUBCONTRACT - 6015 Gas (Purgeable) LL (EAL) SUBCONTRACT - 6915 Diesel LL (EAL) and Motor Oil SUBCONTRACT - (MOD) 525plus PLUS TICs SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL) SUBCONTRACT - 537 1 DW_PREC - 537 1 Full List 533 - All Analytes
Total Number of Containers:		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:			
Special Instructions/Note: chlorinated chlorinated		Special Instructions/Note: chlorinated chlorinated			
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <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 FED EX 1 7746 1676 6764 Method of Shipment: 2 7746 1676 6764 Date/Time: 12/28/2023 09:20 Company: ECAF			
Empty Kit Relinquished by: Bailey Relinquished by:		Date: 21 Dec 2023 1400 Date/Time:		Date/Time: 12/28/2023 09:20 Date/Time:	
Relinquished by: Bailey Relinquished by:		Date: 21 Dec 2023 1400 Date/Time:		Date/Time: 12/28/2023 09:20 Date/Time:	
Relinquished by:		Date:		Date/Time:	
Cycler Temperature(s) °C and Other Remarks:					





# Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-76545-2

SDG Number: 8015, 625

**Login Number: 76545**

**List Source: Eurofins Eaton Analytical Pomona**

**List Number: 1**

**Creator: Elyas, Matthew**

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



## Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-76545-2

SDG Number: 8015, 625

**Login Number: 76545**

**List Number: 2**

**Creator: Khana, Piyush**

**List Source: Eurofins Calscience**

**List Creation: 12/28/23 06:03 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	Seal present with no number.
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.9
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	