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# ANALYTICAL REPORT

## PREPARED FOR

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City & County of Honolulu  
630 South Beretania Street  
Public Service Bldg. Room 310  
Honolulu, Hawaii 96843

Generated 3/25/2024 10:46:51 AM

## JOB DESCRIPTION

RED-HILL [SUBCONTRACT]  
625, 8015  
RUSH Weekly Red Hill

## JOB NUMBER

380-80984-2

# 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 [SUBCONTRACT]

Job ID: 380-80984-2  
SDG: 625, 8015

## Qualifiers

### GC Semi VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.

## Glossary

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

# Case Narrative

Client: City & County of Honolulu  
Project: RED-HILL [SUBCONTRACT]

Job ID: 380-80984-2

**Job ID: 380-80984-2**

**Eurofins Eaton Analytical Pomona**

## Job Narrative 380-80984-2

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 1/31/2024 10:20 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 1.4°C, 1.6°C and 3.0°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 surrogate recovery for the blank and LCS/D associated with preparation batch 570-407727 and analytical batch 570-412285 was outside the upper control limits. The associated samples did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

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

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# Detection Summary

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

Job ID: 380-80984-2  
SDG: 625, 8015

**Client Sample ID: MOANALUA WELLS** **Lab Sample ID: 380-80984-1**  
**PWSID Number: HI0000331**

No Detections.

**Client Sample ID: AIEA GULCH WELLS PUMP 2** **Lab Sample ID: 380-80984-2**  
**PWSID Number: HI0000331**

No Detections.

**Client Sample ID: AIEA WELLS PUMPS 1&2 (260) P2** **Lab Sample ID: 380-80984-3**  
**PWSID Number: HI0000331**

No Detections.

**Client Sample ID: HALAWA WELLS UNITS 1 & 2 P1** **Lab Sample ID: 380-80984-4**  
**PWSID Number: HI0000331**

No Detections.

**Client Sample ID: TB: MOANALUA WELLS** **Lab Sample ID: 380-80984-5**  
**PWSID Number: HI0000331**

No Detections.

**Client Sample ID: TB: AIEA GULCH WELLS PUMP 2** **Lab Sample ID: 380-80984-6**  
**PWSID Number: HI0000331**

No Detections.

**Client Sample ID: TB: AIEA WELLS PUMPS 1&2 (260)** **Lab Sample ID: 380-80984-7**  
**PWSID Number: HI0000331**

No Detections.

**Client Sample ID: TB: HALAWA WELLS UNITS 1 & 2 P1** **Lab Sample ID: 380-80984-8**  
**PWSID Number: HI0000331**

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 [SUBCONTRACT]

Job ID: 380-80984-2  
 SDG: 625, 8015

## Client Sample ID: MOANALUA WELLS

## Lab Sample ID: 380-80984-1

Date Collected: 01/29/24 09:49

Matrix: Drinking Water

Date Received: 01/31/24 10:20

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			02/02/24 16:00	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	89		38 - 134				02/02/24 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)	<27		27	ug/L		02/05/24 13:14	02/20/24 13:54	1
Motor Oil Range Organics [C24-C36]	<27		27	ug/L		02/05/24 13:14	02/20/24 13:54	1
C8-C18	<27		27	ug/L		02/05/24 13:14	02/20/24 13:54	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
n-Octacosane (Surr)	108		60 - 130			02/05/24 13:14	02/20/24 13:54	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		02/05/24 00:00	03/13/24 19:49	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 19:49	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 19:49	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 19:49	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 19:49	1
Acenaphthene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 19:49	1
Acenaphthylene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 19:49	1
Anthracene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 19:49	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 19:49	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 19:49	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 19:49	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 19:49	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 19:49	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 19:49	1
Biphenyl	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 19:49	1
Chrysene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 19:49	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 19:49	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 19:49	1
Dibenzothiophene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 19:49	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		02/05/24 00:00	03/13/24 19:49	1
Fluoranthene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 19:49	1
Fluorene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 19:49	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 19:49	1
Naphthalene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 19:49	1
Perylene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 19:49	1
Phenanthrene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 19:49	1
Pyrene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 19:49	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	131		27 - 133				02/05/24 00:00	03/13/24 19:49	1
(d10-Phenanthrene)	87		43 - 129				02/05/24 00:00	03/13/24 19:49	1
(d12-Chrysene)	62		52 - 144				02/05/24 00:00	03/13/24 19:49	1
(d12-Perylene)	158		36 - 161				02/05/24 00:00	03/13/24 19:49	1
(d8-Naphthalene)	106		25 - 125				02/05/24 00:00	03/13/24 19:49	1

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# Client Sample Results

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

Job ID: 380-80984-2  
 SDG: 625, 8015

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

**Lab Sample ID: 380-80984-2**

Date Collected: 01/29/24 10:45

Matrix: Drinking Water

Date Received: 01/31/24 10:20

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			02/02/24 16:26	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	89		38 - 134				02/02/24 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)	<27		27	ug/L		02/05/24 13:14	02/20/24 14:14	1
Motor Oil Range Organics [C24-C36]	<27		27	ug/L		02/05/24 13:14	02/20/24 14:14	1
C8-C18	<27		27	ug/L		02/05/24 13:14	02/20/24 14:14	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
n-Octacosane (Surr)	113		60 - 130			02/05/24 13:14	02/20/24 14:14	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		02/05/24 00:00	03/13/24 21:36	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 21:36	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 21:36	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 21:36	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 21:36	1
Acenaphthene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 21:36	1
Acenaphthylene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 21:36	1
Anthracene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 21:36	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 21:36	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 21:36	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 21:36	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 21:36	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 21:36	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 21:36	1
Biphenyl	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 21:36	1
Chrysene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 21:36	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 21:36	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 21:36	1
Dibenzothiophene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 21:36	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		02/05/24 00:00	03/13/24 21:36	1
Fluoranthene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 21:36	1
Fluorene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 21:36	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 21:36	1
Naphthalene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 21:36	1
Perylene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 21:36	1
Phenanthrene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 21:36	1
Pyrene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/13/24 21:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	125		27 - 133				02/05/24 00:00	03/13/24 21:36	1
(d10-Phenanthrene)	80		43 - 129				02/05/24 00:00	03/13/24 21:36	1
(d12-Chrysene)	67		52 - 144				02/05/24 00:00	03/13/24 21:36	1
(d12-Perylene)	156		36 - 161				02/05/24 00:00	03/13/24 21:36	1
(d8-Naphthalene)	124		25 - 125				02/05/24 00:00	03/13/24 21:36	1

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# Client Sample Results

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

Job ID: 380-80984-2  
 SDG: 625, 8015

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

**Lab Sample ID: 380-80984-3**

Date Collected: 01/29/24 11:13

Matrix: Drinking Water

Date Received: 01/31/24 10:20

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			02/02/24 16:52	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	79		38 - 134				02/02/24 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)	<26		26	ug/L		02/05/24 13:14	02/20/24 14:35	1
Motor Oil Range Organics [C24-C36]	<26		26	ug/L		02/05/24 13:14	02/20/24 14:35	1
C8-C18	<26		26	ug/L		02/05/24 13:14	02/20/24 14:35	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
n-Octacosane (Surr)	116		60 - 130			02/05/24 13:14	02/20/24 14:35	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		02/05/24 00:00	03/14/24 04:42	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 04:42	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 04:42	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 04:42	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 04:42	1
Acenaphthene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 04:42	1
Acenaphthylene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 04:42	1
Anthracene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 04:42	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 04:42	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 04:42	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 04:42	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 04:42	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 04:42	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 04:42	1
Biphenyl	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 04:42	1
Chrysene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 04:42	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 04:42	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 04:42	1
Dibenzothiophene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 04:42	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		02/05/24 00:00	03/14/24 04:42	1
Fluoranthene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 04:42	1
Fluorene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 04:42	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 04:42	1
Naphthalene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 04:42	1
Perylene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 04:42	1
Phenanthrene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 04:42	1
Pyrene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 04:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	134		27 - 133				02/05/24 00:00	03/14/24 04:42	1
(d10-Phenanthrene)	77		43 - 129				02/05/24 00:00	03/14/24 04:42	1
(d12-Chrysene)	59		52 - 144				02/05/24 00:00	03/14/24 04:42	1
(d12-Perylene)	155		36 - 161				02/05/24 00:00	03/14/24 04:42	1
(d8-Naphthalene)	121		25 - 125				02/05/24 00:00	03/14/24 04:42	1

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# Client Sample Results

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

Job ID: 380-80984-2  
SDG: 625, 8015

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

**Lab Sample ID: 380-80984-4**

Date Collected: 01/29/24 10:21

Matrix: Drinking Water

Date Received: 01/31/24 10:20

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			02/02/24 17:18	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	89		38 - 134				02/02/24 17:18	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		02/05/24 13:14	02/20/24 14:56	1
Motor Oil Range Organics [C24-C36]	<26		26	ug/L		02/05/24 13:14	02/20/24 14:56	1
C8-C18	<26		26	ug/L		02/05/24 13:14	02/20/24 14:56	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
n-Octacosane (Surr)	115		60 - 130			02/05/24 13:14	02/20/24 14:56	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		02/05/24 00:00	03/14/24 06:29	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 06:29	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 06:29	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 06:29	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 06:29	1
Acenaphthene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 06:29	1
Acenaphthylene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 06:29	1
Anthracene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 06:29	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 06:29	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 06:29	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 06:29	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 06:29	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 06:29	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 06:29	1
Biphenyl	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 06:29	1
Chrysene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 06:29	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 06:29	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 06:29	1
Dibenzothiophene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 06:29	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		02/05/24 00:00	03/14/24 06:29	1
Fluoranthene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 06:29	1
Fluorene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 06:29	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 06:29	1
Naphthalene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 06:29	1
Perylene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 06:29	1
Phenanthrene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 06:29	1
Pyrene	ND		0.005	0.001	µg/L		02/05/24 00:00	03/14/24 06:29	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	127		27 - 133				02/05/24 00:00	03/14/24 06:29	1
(d10-Phenanthrene)	86		43 - 129				02/05/24 00:00	03/14/24 06:29	1
(d12-Chrysene)	53		52 - 144				02/05/24 00:00	03/14/24 06:29	1
(d12-Perylene)	123		36 - 161				02/05/24 00:00	03/14/24 06:29	1
(d8-Naphthalene)	120		25 - 125				02/05/24 00:00	03/14/24 06:29	1

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# Client Sample Results

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

Job ID: 380-80984-2  
 SDG: 625, 8015

## Client Sample ID: TB: MOANALUA WELLS

Lab Sample ID: 380-80984-5

Date Collected: 01/29/24 09:49

Matrix: Water

Date Received: 01/31/24 10:20

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			02/02/24 13:24	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	82		38 - 134				02/02/24 13:24	1

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

Lab Sample ID: 380-80984-6

Date Collected: 01/29/24 10:45

Matrix: Water

Date Received: 01/31/24 10:20

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			02/02/24 13:50	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	62		38 - 134				02/02/24 13:50	1

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

Lab Sample ID: 380-80984-7

Date Collected: 01/29/24 11:13

Matrix: Water

Date Received: 01/31/24 10:20

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			02/02/24 14:16	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	87		38 - 134				02/02/24 14:16	1

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

Lab Sample ID: 380-80984-8

Date Collected: 01/29/24 10:21

Matrix: Water

Date Received: 01/31/24 10:20

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			02/02/24 14:42	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	87		38 - 134				02/02/24 14:42	1

# Surrogate Summary

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

Job ID: 380-80984-2  
 SDG: 625, 8015

## 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)
380-80984-1	MOANALUA WELLS	89
380-80984-2	AIEA GULCH WELLS PUMP 2	89
380-80984-2 MS	AIEA GULCH WELLS PUMP 2	97
380-80984-2 MSD	AIEA GULCH WELLS PUMP 2	96
380-80984-3	AIEA WELLS PUMPS 1&2 (260) P2	79
380-80984-4	HALAWA WELLS UNITS 1 & 2 P1	89

**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)
380-80984-5	TB: MOANALUA WELLS	82
380-80984-6	TB: AIEA GULCH WELLS PUMF 2	62
380-80984-7	TB: AIEA WELLS PUMPS 1&2 (260)	87
380-80984-8	TB: HALAWA WELLS UNITS 1 & 2 P1	87
LCS 570-407046/4	Lab Control Sample	99
LCSD 570-407046/5	Lab Control Sample Dup	101
MB 570-407046/6	Method Blank	98
MRL 570-407046/3	Lab Control Sample	87

**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)
380-80984-1	MOANALUA WELLS	108
380-80984-2	AIEA GULCH WELLS PUMP 2	113
380-80984-3	AIEA WELLS PUMPS 1&2 (260) P2	116
380-80984-4	HALAWA WELLS UNITS 1 & 2 P1	115

**Surrogate Legend**

OTCSN = n-Octacosane (Surr)

# Surrogate Summary

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

Job ID: 380-80984-2  
 SDG: 625, 8015

**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)
380-81069-A-1-F DU	Duplicate	104
380-81069-A-1-G MS	Matrix Spike	114
380-81069-A-1-H MSD	Matrix Spike Duplicate	113
LCS 570-407727/2-A	Lab Control Sample	140 S1+
LCSD 570-407727/3-A	Lab Control Sample Dup	134 S1+
MB 570-407727/1-A	Method Blank	142 S1+
MRL 570-407727/4-A	Lab Control Sample	137

**Surrogate Legend**

OTCSN = n-Octacosane (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)
115182-B1	Method Blank	130	119	69	98	159
115182-BS1	Lab Control Sample	114	129	107	86	152
115182-BS2	Lab Control Sample Dup	114	124	91	91	155

**Surrogate Legend**

(d10-Acenaphthene) = (d10-Acenaphthene)

(d10-Phenanthrene) = (d10-Phenanthrene)

CRY = (d12-Chrysene)

NPT = (d8-Naphthalene)

PRY = (d12-Perylene)

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

**Matrix: Drinking Water**

**Prep Type: Total/NA**

### 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)
380-80984-1	MOANALUA WELLS	131	87	62	106	158
380-80984-2	AIEA GULCH WELLS PUMP 2	125	80	67	124	156
380-80984-3	AIEA WELLS PUMPS 1&2 (260) P2	134	77	59	121	155
380-80984-4	HALAWA WELLS UNITS 1 & 2 P1	127	86	53	120	123

**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 [SUBCONTRACT]

Job ID: 380-80984-2  
 SDG: 625, 8015

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

**Lab Sample ID: MB 570-407046/6**  
**Matrix: Water**  
**Analysis Batch: 407046**

**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			02/02/24 12:37	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		38 - 134				02/02/24 12:37	1

**Lab Sample ID: LCS 570-407046/4**  
**Matrix: Water**  
**Analysis Batch: 407046**

**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	373		ug/L		93	78 - 120
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	99		38 - 134				

**Lab Sample ID: LCSD 570-407046/5**  
**Matrix: Water**  
**Analysis Batch: 407046**

**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	377		ug/L		94	78 - 120	1	10
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	101		38 - 134						

**Lab Sample ID: MRL 570-407046/3**  
**Matrix: Water**  
**Analysis Batch: 407046**

**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	10.5		ug/L		105	50 - 150
Surrogate	MRL %Recovery	MRL Qualifier	Limits				
4-Bromofluorobenzene (Surr)	87		38 - 134				

**Lab Sample ID: 380-80984-2 MS**  
**Matrix: Drinking Water**  
**Analysis Batch: 407046**

**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	368		ug/L		92	68 - 122
Surrogate	MS %Recovery	MS Qualifier	Limits						
4-Bromofluorobenzene (Surr)	97		38 - 134						

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# QC Sample Results

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

Job ID: 380-80984-2  
 SDG: 625, 8015

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

**Lab Sample ID: 380-80984-2 MSD**  
**Matrix: Drinking Water**  
**Analysis Batch: 407046**

**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	367		ug/L		92	68 - 122	0	18
<b>Surrogate</b>	<b>%Recovery</b>	<b>MSD Qualifier</b>	<b>MSD Limits</b>								
4-Bromofluorobenzene (Surr)	96		38 - 134								

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

**Lab Sample ID: MB 570-407727/1-A**  
**Matrix: Water**  
**Analysis Batch: 412285**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 407727**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (C10-C24)	<25		25	ug/L		02/05/24 13:14	02/20/24 12:51	1
Motor Oil Range Organics [C24-C36]	<25		25	ug/L		02/05/24 13:14	02/20/24 12:51	1
C8-C18	<25		25	ug/L		02/05/24 13:14	02/20/24 12:51	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)	142	S1+	60 - 130	02/05/24 13:14	02/20/24 12:51	1		

**Lab Sample ID: LCS 570-407727/2-A**  
**Matrix: Water**  
**Analysis Batch: 412285**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 407727**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C10-C28	1600	1940		ug/L		121	56 - 127
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>LCS Limits</b>				
n-Octacosane (Surr)	140	S1+	60 - 130				

**Lab Sample ID: LCSD 570-407727/3-A**  
**Matrix: Water**  
**Analysis Batch: 412285**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 407727**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C10-C28	1600	1900		ug/L		119	56 - 127	2	23
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCSD Qualifier</b>	<b>LCSD Limits</b>						
n-Octacosane (Surr)	134	S1+	60 - 130						

**Lab Sample ID: MRL 570-407727/4-A**  
**Matrix: Water**  
**Analysis Batch: 412285**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 407727**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
C10-C28	0.0200	<0.020		mg/L		55	50 - 150



# QC Sample Results

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

Job ID: 380-80984-2  
SDG: 625, 8015

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

**Lab Sample ID: MRL 570-407727/4-A**  
**Matrix: Water**  
**Analysis Batch: 412285**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 407727**

	MRL	MRL	
Surrogate	%Recovery	Qualifier	Limits
<i>n</i> -Octacosane (Surr)	137		60 - 130

**Lab Sample ID: 380-81069-A-1-G MS**  
**Matrix: Water**  
**Analysis Batch: 412285**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 407727**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
C10-C28	<25		1620	1740		ug/L		108	70 - 130

  

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
<i>n</i> -Octacosane (Surr)	114		60 - 130

**Lab Sample ID: 380-81069-A-1-H MSD**  
**Matrix: Water**  
**Analysis Batch: 412285**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 407727**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
C10-C28	<25		1660	1810		ug/L		109	70 - 130	4	20

  

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
<i>n</i> -Octacosane (Surr)	113		60 - 130

**Lab Sample ID: 380-81069-A-1-F DU**  
**Matrix: Water**  
**Analysis Batch: 412285**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 407727**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Diesel Range Organics (C10-C24)	<25		<26		ug/L		NC	
Motor Oil Range Organics [C24-C36]	<25		<26		ug/L		NC	
C8-C18	<25		<26		ug/L		NC	

  

	DU	DU	
Surrogate	%Recovery	Qualifier	Limits
<i>n</i> -Octacosane (Surr)	104		60 - 130

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

**Lab Sample ID: 115182-B1**  
**Matrix: BlankMatrix**  
**Analysis Batch: O-44102**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: O-44102\_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1

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# QC Sample Results

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

Job ID: 380-80984-2  
 SDG: 625, 8015

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

**Lab Sample ID: 115182-B1**  
**Matrix: BlankMatrix**  
**Analysis Batch: O-44102**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: O-44102\_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
Acenaphthylene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
Anthracene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
Biphenyl	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
Chrysene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
Dibenzothiophene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
DisalicylidenePROPANEDIAMINE	ND		0.1	0.05	µg/L		02/06/24 00:00	03/12/24 20:21	1
Fluoranthene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
Fluorene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
Naphthalene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
Perylene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
Phenanthrene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
Pyrene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1

Surrogate	Blank %Recovery	Blank Qualifier	Limits	Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	130		27 - 133	02/06/24 00:00	03/12/24 20:21	1
(d10-Phenanthrene)	119		43 - 129	02/06/24 00:00	03/12/24 20:21	1
(d12-Chrysene)	69		52 - 144	02/06/24 00:00	03/12/24 20:21	1
(d12-Perylene)	159		36 - 161	02/06/24 00:00	03/12/24 20:21	1
(d8-Naphthalene)	98		25 - 125	02/06/24 00:00	03/12/24 20:21	1

**Lab Sample ID: 115182-BS1**  
**Matrix: BlankMatrix**  
**Analysis Batch: O-44102**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: O-44102\_P**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1-Methylnaphthalene	0.5	0.488		µg/L		98	31 - 128
1-Methylphenanthrene	0.5	0.432		µg/L		86	66 - 127
2,3,5-Trimethylnaphthalene	0.5	0.488		µg/L		98	55 - 122
2,6-Dimethylnaphthalene	0.5	0.457		µg/L		91	48 - 120
2-Methylnaphthalene	1.5	1.36		µg/L		91	47 - 130
Acenaphthene	1.5	1.56		µg/L		104	53 - 131
Acenaphthylene	1.5	1.62		µg/L		108	43 - 140
Anthracene	1.5	1.46		µg/L		97	58 - 135
Benz[a]anthracene	0.5	0.528		µg/L		106	55 - 145
Benzo[a]pyrene	1.5	1.67		µg/L		111	51 - 143
Benzo[b]fluoranthene	0.5	0.295		µg/L		59	46 - 165
Benzo[e]pyrene	0.5	0.409		µg/L		82	42 - 152
Benzo[g,h,i]perylene	1.5	1.39		µg/L		93	63 - 133

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-80984-2  
 SDG: 625, 8015

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

**Lab Sample ID: 115182-BS1**  
**Matrix: BlankMatrix**  
**Analysis Batch: O-44102**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: O-44102\_P**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[k]fluoranthene	0.5	0.675		µg/L		135	56 - 145
Biphenyl	0.5	0.506		µg/L		101	56 - 119
Chrysene	1.5	0.988		µg/L		66	56 - 141
Dibenz[a,h]anthracene	0.5	0.615		µg/L		123	55 - 150
Dibenzo[a,l]pyrene	0.5	0.496		µg/L		99	50 - 150
Dibenzothiophene	0.5	0.541		µg/L		108	46 - 126
Disalicylideneprapanediamine	50	25.2		µg/L		50	50 - 150
Fluoranthene	1.5	1.58		µg/L		105	60 - 146
Fluorene	1.5	1.93		µg/L		129	58 - 131
Indeno[1,2,3-cd]pyrene	1.5	1.17		µg/L		78	50 - 151
Naphthalene	1.5	1.41		µg/L		94	41 - 126
Perylene	0.5	0.705		µg/L		141	48 - 141
Phenanthrene	1.5	1.83		µg/L		122	67 - 127
Pyrene	1.5	1.48		µg/L		99	54 - 156

Surrogate	LCS %Recovery	LCS Qualifier	Limits
(d10-Acenaphthene)	114		27 - 133
(d10-Phenanthrene)	129		43 - 129
(d12-Chrysene)	107		52 - 144
(d12-Perylene)	152		36 - 161
(d8-Naphthalene)	86		25 - 125

**Lab Sample ID: 115182-BS2**  
**Matrix: BlankMatrix**  
**Analysis Batch: O-44102**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: O-44102\_P**

Analyte	Spike Added	LCS DUP Result	LCS DUP Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1-Methylnaphthalene	0.5	0.554		µg/L		111	31 - 128	12	30
1-Methylphenanthrene	0.5	0.401		µg/L		80	66 - 127	7	30
2,3,5-Trimethylnaphthalene	0.5	0.463		µg/L		93	55 - 122	5	30
2,6-Dimethylnaphthalene	0.5	0.48		µg/L		96	48 - 120	5	30
2-Methylnaphthalene	1.5	1.42		µg/L		95	47 - 130	4	30
Acenaphthene	1.5	1.58		µg/L		105	53 - 131	1	30
Acenaphthylene	1.5	1.62		µg/L		108	43 - 140	0	30
Anthracene	1.5	1.4		µg/L		93	58 - 135	4	30
Benz[a]anthracene	0.5	0.483		µg/L		97	55 - 145	9	30
Benzo[a]pyrene	1.5	1.66		µg/L		111	51 - 143	0	30
Benzo[b]fluoranthene	0.5	0.279		µg/L		56	46 - 165	5	30
Benzo[e]pyrene	0.5	0.402		µg/L		80	42 - 152	2	30
Benzo[g,h,i]perylene	1.5	1.34		µg/L		89	63 - 133	4	30
Benzo[k]fluoranthene	0.5	0.611		µg/L		122	56 - 145	11	30
Biphenyl	0.5	0.532		µg/L		106	56 - 119	5	30
Chrysene	1.5	0.895		µg/L		60	56 - 141	10	30
Dibenz[a,h]anthracene	0.5	0.596		µg/L		119	55 - 150	3	30
Dibenzo[a,l]pyrene	0.5	0.561		µg/L		112	50 - 150	12	30
Dibenzothiophene	0.5	0.522		µg/L		104	46 - 126	4	30
Disalicylideneprapanediamine	50	27.2		µg/L		54	50 - 150	8	30
Fluoranthene	1.5	1.47		µg/L		98	60 - 146	7	30

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-80984-2  
 SDG: 625, 8015

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

**Lab Sample ID: 115182-BS2**  
**Matrix: BlankMatrix**  
**Analysis Batch: O-44102**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: O-44102\_P**

Analyte	Spike Added	LCS DUP Result	LCS DUP Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Fluorene	1.5	1.9		µg/L		127	58 - 131	2	30
Indeno[1,2,3-cd]pyrene	1.5	1.19		µg/L		79	50 - 151	1	30
Naphthalene	1.5	1.48		µg/L		99	41 - 126	5	30
Perylene	0.5	0.698		µg/L		140	48 - 141	1	30
Phenanthrene	1.5	1.75		µg/L		117	67 - 127	4	30
Pyrene	1.5	1.36		µg/L		91	54 - 156	8	30

Surrogate	LCS DUP		Limits
	%Recovery	Qualifier	
(d10-Acenaphthene)	114		27 - 133
(d10-Phenanthrene)	124		43 - 129
(d12-Chrysene)	91		52 - 144
(d12-Perylene)	155		36 - 161
(d8-Naphthalene)	91		25 - 125

# QC Association Summary

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

Job ID: 380-80984-2  
 SDG: 625, 8015

## GC VOA

### Analysis Batch: 407046

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-80984-1	MOANALUA WELLS	Total/NA	Drinking Water	8015B GRO LL	
380-80984-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	8015B GRO LL	
380-80984-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	8015B GRO LL	
380-80984-4	HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Drinking Water	8015B GRO LL	
380-80984-5	TB: MOANALUA WELLS	Total/NA	Water	8015B GRO LL	
380-80984-6	TB: AIEA GULCH WELLS PUMP 2	Total/NA	Water	8015B GRO LL	
380-80984-7	TB: AIEA WELLS PUMPS 1&2 (260)	Total/NA	Water	8015B GRO LL	
380-80984-8	TB: HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Water	8015B GRO LL	
MB 570-407046/6	Method Blank	Total/NA	Water	8015B GRO LL	
LCS 570-407046/4	Lab Control Sample	Total/NA	Water	8015B GRO LL	
LCSD 570-407046/5	Lab Control Sample Dup	Total/NA	Water	8015B GRO LL	
MRL 570-407046/3	Lab Control Sample	Total/NA	Water	8015B GRO LL	
380-80984-2 MS	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	8015B GRO LL	
380-80984-2 MSD	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	8015B GRO LL	

## GC Semi VOA

### Prep Batch: 407727

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-80984-1	MOANALUA WELLS	Total/NA	Drinking Water	3510C	
380-80984-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	3510C	
380-80984-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	3510C	
380-80984-4	HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Drinking Water	3510C	
MB 570-407727/1-A	Method Blank	Total/NA	Water	3510C	
LCS 570-407727/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 570-407727/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
MRL 570-407727/4-A	Lab Control Sample	Total/NA	Water	3510C	
380-81069-A-1-G MS	Matrix Spike	Total/NA	Water	3510C	
380-81069-A-1-H MSD	Matrix Spike Duplicate	Total/NA	Water	3510C	
380-81069-A-1-F DU	Duplicate	Total/NA	Water	3510C	

### Analysis Batch: 412285

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-80984-1	MOANALUA WELLS	Total/NA	Drinking Water	8015B	407727
380-80984-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	8015B	407727
380-80984-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	8015B	407727
380-80984-4	HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Drinking Water	8015B	407727
MB 570-407727/1-A	Method Blank	Total/NA	Water	8015B	407727
LCS 570-407727/2-A	Lab Control Sample	Total/NA	Water	8015B	407727
LCSD 570-407727/3-A	Lab Control Sample Dup	Total/NA	Water	8015B	407727
MRL 570-407727/4-A	Lab Control Sample	Total/NA	Water	8015B	407727
380-81069-A-1-G MS	Matrix Spike	Total/NA	Water	8015B	407727
380-81069-A-1-H MSD	Matrix Spike Duplicate	Total/NA	Water	8015B	407727
380-81069-A-1-F DU	Duplicate	Total/NA	Water	8015B	407727

## Subcontract

### Analysis Batch: O-44102

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-80984-1	MOANALUA WELLS	Total/NA	Drinking Water	625 PAH Physis LL (EAL) + TICs	O-44102_P

# QC Association Summary

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

Job ID: 380-80984-2  
 SDG: 625, 8015

## Subcontract (Continued)

### Analysis Batch: O-44102 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-80984-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	625 PAH Physis LL (EAL) + TICs	O-44102_P
380-80984-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	625 PAH Physis LL (EAL) + TICs	O-44102_P
380-80984-4	HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Drinking Water	625 PAH Physis LL (EAL) + TICs	O-44102_P
115182-B1	Method Blank	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-44102_P
115182-BS1	Lab Control Sample	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-44102_P
115182-BS2	Lab Control Sample Dup	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-44102_P

### Prep Batch: O-44102\_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-80984-1	MOANALUA WELLS	Total/NA	Drinking Water	EPA_625	
380-80984-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	EPA_625	
380-80984-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	EPA_625	
380-80984-4	HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Drinking Water	EPA_625	
115182-B1	Method Blank	Total/NA	BlankMatrix	EPA_625	
115182-BS1	Lab Control Sample	Total/NA	BlankMatrix	EPA_625	
115182-BS2	Lab Control Sample Dup	Total/NA	BlankMatrix	EPA_625	

# Lab Chronicle

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

Job ID: 380-80984-2  
 SDG: 625, 8015

## Client Sample ID: MOANALUA WELLS

Lab Sample ID: 380-80984-1

Date Collected: 01/29/24 09:49

Matrix: Drinking Water

Date Received: 01/31/24 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015B GRO LL		1	407046	A9VE	EET CAL 4	02/02/24 16:00
Total/NA	Prep	3510C			407727	UFLU	EET CAL 4	02/05/24 13:14
Total/NA	Analysis	8015B		1	412285	SP9M	EET CAL 4	02/20/24 13:54
Total/NA	Prep	EPA_625		1	O-44102_P			02/05/24 00:00
Total/NA	Analysis	625 PAH Physis LL (EAL) + TICs		1	O-44102	YC		03/13/24 19:49

## Client Sample ID: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-80984-2

Date Collected: 01/29/24 10:45

Matrix: Drinking Water

Date Received: 01/31/24 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015B GRO LL		1	407046	A9VE	EET CAL 4	02/02/24 16:26
Total/NA	Prep	3510C			407727	UFLU	EET CAL 4	02/05/24 13:14
Total/NA	Analysis	8015B		1	412285	SP9M	EET CAL 4	02/20/24 14:14
Total/NA	Prep	EPA_625		1	O-44102_P			02/05/24 00:00
Total/NA	Analysis	625 PAH Physis LL (EAL) + TICs		1	O-44102	YC		03/13/24 21:36

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

Lab Sample ID: 380-80984-3

Date Collected: 01/29/24 11:13

Matrix: Drinking Water

Date Received: 01/31/24 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015B GRO LL		1	407046	A9VE	EET CAL 4	02/02/24 16:52
Total/NA	Prep	3510C			407727	UFLU	EET CAL 4	02/05/24 13:14
Total/NA	Analysis	8015B		1	412285	SP9M	EET CAL 4	02/20/24 14:35
Total/NA	Prep	EPA_625		1	O-44102_P			02/05/24 00:00
Total/NA	Analysis	625 PAH Physis LL (EAL) + TICs		1	O-44102	YC		03/14/24 04:42

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

Lab Sample ID: 380-80984-4

Date Collected: 01/29/24 10:21

Matrix: Drinking Water

Date Received: 01/31/24 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015B GRO LL		1	407046	A9VE	EET CAL 4	02/02/24 17:18
Total/NA	Prep	3510C			407727	UFLU	EET CAL 4	02/05/24 13:14
Total/NA	Analysis	8015B		1	412285	SP9M	EET CAL 4	02/20/24 14:56
Total/NA	Prep	EPA_625		1	O-44102_P			02/05/24 00:00
Total/NA	Analysis	625 PAH Physis LL (EAL) + TICs		1	O-44102	YC		03/14/24 06:29

# Lab Chronicle

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

Job ID: 380-80984-2  
 SDG: 625, 8015

**Client Sample ID: TB: MOANALUA WELLS**

**Lab Sample ID: 380-80984-5**

Date Collected: 01/29/24 09:49

Matrix: Water

Date Received: 01/31/24 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015B GRO LL		1	407046	A9VE	EET CAL 4	02/02/24 13:24

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

**Lab Sample ID: 380-80984-6**

Date Collected: 01/29/24 10:45

Matrix: Water

Date Received: 01/31/24 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015B GRO LL		1	407046	A9VE	EET CAL 4	02/02/24 13:50

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

**Lab Sample ID: 380-80984-7**

Date Collected: 01/29/24 11:13

Matrix: Water

Date Received: 01/31/24 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015B GRO LL		1	407046	A9VE	EET CAL 4	02/02/24 14:16

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

**Lab Sample ID: 380-80984-8**

Date Collected: 01/29/24 10:21

Matrix: Water

Date Received: 01/31/24 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015B GRO LL		1	407046	A9VE	EET CAL 4	02/02/24 14:42

**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 [SUBCONTRACT]

Job ID: 380-80984-2  
SDG: 625, 8015

## 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	02-03-25
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 [SUBCONTRACT]

Job ID: 380-80984-2  
SDG: 625, 8015

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
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 [SUBCONTRACT]

Job ID: 380-80984-2  
SDG: 625, 8015

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	PWSID Number
380-80984-1	MOANALUA WELLS	Drinking Water	01/29/24 09:49	01/31/24 10:20	HI0000331
380-80984-2	AIEA GULCH WELLS PUMP 2	Drinking Water	01/29/24 10:45	01/31/24 10:20	HI0000331
380-80984-3	AIEA WELLS PUMPS 1&2 (260) P2	Drinking Water	01/29/24 11:13	01/31/24 10:20	HI0000331
380-80984-4	HALAWA WELLS UNITS 1 & 2 P1	Drinking Water	01/29/24 10:21	01/31/24 10:20	HI0000331
380-80984-5	TB: MOANALUA WELLS	Water	01/29/24 09:49	01/31/24 10:20	HI0000331
380-80984-6	TB: AIEA GULCH WELLS PUMP 2	Water	01/29/24 10:45	01/31/24 10:20	HI0000331
380-80984-7	TB: AIEA WELLS PUMPS 1&2 (260)	Water	01/29/24 11:13	01/31/24 10:20	HI0000331
380-80984-8	TB: HALAWA WELLS UNITS 1 & 2 P1	Water	01/29/24 10:21	01/31/24 10:20	HI0000331

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March 21, 2024

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

Project Name: RED-HILL Project # 38001111 Job # 380-80984-1  
 Physis Project ID: 1407003-483

Dear Rachelle,

Enclosed are the analytical results for samples submitted to PHYSIS Environmental Laboratories, Inc. (PHYSIS) on 2/1/2024. 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: 1407003-483

RED-HILL Project # 38001111 Job # 380-80984-1

Total Samples: 4

PHYSIS ID	Sample ID	Description	Date	Time	Matrix	Sample Type
115183	MOANALUA WELLS	380-80984-1	1/29/2024	9:49	Samplewater	Not Specified
115184	AIEA GULCH WELLS PUMP 2	380-80984-2	1/29/2024	10:45	Samplewater	Not Specified
115185	AIEA WELLS PUMPS 1&2(260) P2	380-80984-3	1/29/2024	11:13	Samplewater	Not Specified
115186	HALAWA WELLS UNITS 1 & 2 P1	380-80984-4	1/29/2024	10:21	Samplewater	Not Specified

## ABBREVIATIONS and ACRONYMS

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

## QUALITY ASSURANCE SUMMARY

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

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

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

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

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

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

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

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

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

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

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

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

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

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

## PHYSIS QUALIFIER CODES

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



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## CASE NARRATIVE

### QUALIFIER NOTES

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

#### **ND**

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

# ANALYTICAL REPORT

TERRA AURA ENVIRONMENTAL LABORATORIES, INC.

*Innovative Solutions for Nature*

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### Base/Neutral Extractable Compounds

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
<b>Sample ID: 115183-R1 MOANALUA WELLS 380-80984-1 Matrix: Samplewater</b>											
Disalicylideneprapanediamine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-44102	05-Feb-24	13-Mar-24
<b>Sample ID: 115184-R1 AIEA GULCH WELLS PUMP 2 380-8 Matrix: Samplewater</b>											
Disalicylideneprapanediamine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-44102	05-Feb-24	13-Mar-24
<b>Sample ID: 115185-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-44102	05-Feb-24	14-Mar-24
<b>Sample ID: 115186-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-44102	05-Feb-24	14-Mar-24

## Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
<b>Sample ID: 115183-R1</b>	<b>MOANALUA WELLS 380-80984-1</b>	<b>Matrix: Samplewater</b>					<b>Sampled: 29-Jan-24 9:49</b>			<b>Received: 01-Feb-24</b>	
(d10-Acenaphthene)	EPA 625.1	% Recovery	131	1			Total		O-44102	05-Feb-24	13-Mar-24
(d10-Phenanthrene)	EPA 625.1	% Recovery	87	1			Total		O-44102	05-Feb-24	13-Mar-24
(d12-Chrysene)	EPA 625.1	% Recovery	62	1			Total		O-44102	05-Feb-24	13-Mar-24
(d12-Perylene)	EPA 625.1	% Recovery	158	1			Total		O-44102	05-Feb-24	13-Mar-24
(d8-Naphthalene)	EPA 625.1	% Recovery	106	1			Total		O-44102	05-Feb-24	13-Mar-24
1-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24
1-Methylphenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24
2,3,5-Trimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24
2,6-Dimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24
2-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24
Acenaphthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24
Acenaphthylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24
Anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24
Benz[a]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24
Benzo[a]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24
Benzo[b]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24
Benzo[e]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24
Benzo[g,h,i]perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24
Benzo[k]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24
Biphenyl	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24
Chrysene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24
Dibenz[a,h]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24
Dibenzo[a,l]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24
Dibenzothiophene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-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-44102	05-Feb-24	13-Mar-24
Fluorene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24
Indeno[1,2,3-cd]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24
Naphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24
Perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24
Phenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24
Pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24

## Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed	
<b>Sample ID: 115184-R1</b>	<b>AIEA GULCH WELLS PUMP 2 380-8 Matrix: Samplewater</b>						<b>Sampled:</b>	<b>29-Jan-24 10:45</b>	<b>Received:</b>	<b>01-Feb-24</b>		
(d10-Acenaphthene)	EPA 625.1	% Recovery	125	1			Total		O-44102	05-Feb-24	13-Mar-24	
(d10-Phenanthrene)	EPA 625.1	% Recovery	80	1			Total		O-44102	05-Feb-24	13-Mar-24	
(d12-Chrysene)	EPA 625.1	% Recovery	67	1			Total		O-44102	05-Feb-24	13-Mar-24	
(d12-Perylene)	EPA 625.1	% Recovery	156	1			Total		O-44102	05-Feb-24	13-Mar-24	
(d8-Naphthalene)	EPA 625.1	% Recovery	124	1			Total		O-44102	05-Feb-24	13-Mar-24	
1-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24	
1-Methylphenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24	
2,3,5-Trimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24	
2,6-Dimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24	
2-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24	
Acenaphthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24	
Acenaphthylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24	
Anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24	
Benz[a]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24	
Benzo[a]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24	
Benzo[b]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24	
Benzo[e]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24	
Benzo[g,h,i]perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24	
Benzo[k]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24	
Biphenyl	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24	
Chrysene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24	
Dibenz[a,h]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24	
Dibenzo[a,l]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24	
Dibenzothiophene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-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-44102	05-Feb-24	13-Mar-24
Fluorene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24
Indeno[1,2,3-cd]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24
Naphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24
Perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24
Phenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24
Pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	13-Mar-24



## Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
<b>Sample ID: 115185-R1</b>	<b>AIEA WELLS PUMPS 1&amp;2(260) P2 3 Matrix: Samplewater</b>						<b>Sampled:</b>	<b>29-Jan-24</b>	<b>11:13</b>	<b>Received:</b>	<b>01-Feb-24</b>
(d10-Acenaphthene)	EPA 625.1	% Recovery	134	1			Total		O-44102	05-Feb-24	14-Mar-24
(d10-Phenanthrene)	EPA 625.1	% Recovery	77	1			Total		O-44102	05-Feb-24	14-Mar-24
(d12-Chrysene)	EPA 625.1	% Recovery	59	1			Total		O-44102	05-Feb-24	14-Mar-24
(d12-Perylene)	EPA 625.1	% Recovery	155	1			Total		O-44102	05-Feb-24	14-Mar-24
(d8-Naphthalene)	EPA 625.1	% Recovery	121	1			Total		O-44102	05-Feb-24	14-Mar-24
1-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
1-Methylphenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
2,3,5-Trimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
2,6-Dimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
2-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
Acenaphthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
Acenaphthylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
Anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
Benz[a]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
Benzo[a]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
Benzo[b]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
Benzo[e]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
Benzo[g,h,i]perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
Benzo[k]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
Biphenyl	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
Chrysene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
Dibenz[a,h]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
Dibenzo[a,l]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
Dibenzothiophene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-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-44102	05-Feb-24	14-Mar-24
Fluorene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
Indeno[1,2,3-cd]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
Naphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
Perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
Phenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
Pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24



## Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
<b>Sample ID: 115186-R1</b>	<b>HALAWA WELLS UNITS 1 &amp; 2 P1 38 Matrix: Samplewater</b>						<b>Sampled: 29-Jan-24 10:21</b>		<b>Received: 01-Feb-24</b>		
(d10-Acenaphthene)	EPA 625.1	% Recovery	127	1			Total		O-44102	05-Feb-24	14-Mar-24
(d10-Phenanthrene)	EPA 625.1	% Recovery	86	1			Total		O-44102	05-Feb-24	14-Mar-24
(d12-Chrysene)	EPA 625.1	% Recovery	53	1			Total		O-44102	05-Feb-24	14-Mar-24
(d12-Perylene)	EPA 625.1	% Recovery	123	1			Total		O-44102	05-Feb-24	14-Mar-24
(d8-Naphthalene)	EPA 625.1	% Recovery	120	1			Total		O-44102	05-Feb-24	14-Mar-24
1-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
1-Methylphenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
2,3,5-Trimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
2,6-Dimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
2-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
Acenaphthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
Acenaphthylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
Anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
Benz[a]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
Benzo[a]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
Benzo[b]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
Benzo[e]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
Benzo[g,h,i]perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
Benzo[k]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
Biphenyl	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
Chrysene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
Dibenz[a,h]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
Dibenzo[a,l]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
Dibenzothiophene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-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-44102	05-Feb-24	14-Mar-24
Fluorene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
Indeno[1,2,3-cd]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
Naphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
Perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
Phenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-24
Pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	05-Feb-24	14-Mar-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: 115182-B1</b>		<b>QAQC Procedural Blank</b>			<b>Matrix: BlankMatrix</b>			<b>Sampled:</b>				<b>Received:</b>			
		Method: EPA 625.1			Batch ID: O-44102			Prepared: o6-Feb-24				Analyzed: 12-Mar-24			
Disalicylidenepropanediamin	Total	ND	1	0.05	0.1	µg/L									
<b>Sample ID: 115182-BS1</b>		<b>QAQC Procedural Blank</b>			<b>Matrix: BlankMatrix</b>			<b>Sampled:</b>				<b>Received:</b>			
		Method: EPA 625.1			Batch ID: O-44102			Prepared: o6-Feb-24				Analyzed: 13-Mar-24			
Disalicylidenepropanediamin	Total	25.2	1	0.05	0.1	µg/L	50	0	50	50 - 150%	PASS				
<b>Sample ID: 115182-BS2</b>		<b>QAQC Procedural Blank</b>			<b>Matrix: BlankMatrix</b>			<b>Sampled:</b>				<b>Received:</b>			
		Method: EPA 625.1			Batch ID: O-44102			Prepared: o6-Feb-24				Analyzed: 13-Mar-24			
Disalicylidenepropanediamin	Total	27.2	1	0.05	0.1	µg/L	50	0	54	50 - 150%	PASS	8	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: 115182-B1</b>		<b>QAQC Procedural Blank</b>			<b>Matrix: BlankMatrix</b>		<b>Sampled:</b>		<b>Received:</b>		
		Method: EPA 625.1				Batch ID: O-44102	Prepared: 06-Feb-24		Analyzed: 12-Mar-24		
(d10-Acenaphthene)	Total	130	1			% Recovery	100	130	27 - 133%	PASS	
(d10-Phenanthrene)	Total	119	1			% Recovery	100	119	43 - 129%	PASS	
(d12-Chrysene)	Total	69	1			% Recovery	100	69	52 - 144%	PASS	
(d12-Perylene)	Total	159	1			% Recovery	100	159	36 - 161%	PASS	
(d8-Naphthalene)	Total	98	1			% Recovery	100	98	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: 115182-BS1</b>		<b>QAQC Procedural Blank</b>			<b>Matrix: BlankMatrix</b>			<b>Sampled:</b>		<b>Received:</b>		
Method: EPA 625.1		Batch ID: O-44102			Prepared: 06-Feb-24		Analyzed: 13-Mar-24					
(d10-Acenaphthene)	Total	114	1			% Recovery	100	0	114	27 - 133%	PASS	
(d10-Phenanthrene)	Total	129	1			% Recovery	100	0	129	43 - 129%	PASS	
(d12-Chrysene)	Total	107	1			% Recovery	100	0	107	52 - 144%	PASS	
(d12-Perylene)	Total	152	1			% Recovery	100	0	152	36 - 161%	PASS	
(d8-Naphthalene)	Total	86	1			% Recovery	100	0	86	25 - 125%	PASS	
1-Methylnaphthalene	Total	0.488	1	0.001	0.005	µg/L	0.5	0	98	31 - 128%	PASS	
1-Methylphenanthrene	Total	0.432	1	0.001	0.005	µg/L	0.5	0	86	66 - 127%	PASS	
2,3,5-Trimethylnaphthalene	Total	0.488	1	0.001	0.005	µg/L	0.5	0	98	55 - 122%	PASS	
2,6-Dimethylnaphthalene	Total	0.457	1	0.001	0.005	µg/L	0.5	0	91	48 - 120%	PASS	
2-Methylnaphthalene	Total	1.36	1	0.001	0.005	µg/L	1.5	0	91	47 - 130%	PASS	
Acenaphthene	Total	1.56	1	0.001	0.005	µg/L	1.5	0	104	53 - 131%	PASS	
Acenaphthylene	Total	1.62	1	0.001	0.005	µg/L	1.5	0	108	43 - 140%	PASS	
Anthracene	Total	1.46	1	0.001	0.005	µg/L	1.5	0	97	58 - 135%	PASS	
Benz[a]anthracene	Total	0.528	1	0.001	0.005	µg/L	0.5	0	106	55 - 145%	PASS	
Benzo[a]pyrene	Total	1.67	1	0.001	0.005	µg/L	1.5	0	111	51 - 143%	PASS	
Benzo[b]fluoranthene	Total	0.295	1	0.001	0.005	µg/L	0.5	0	59	46 - 165%	PASS	
Benzo[e]pyrene	Total	0.409	1	0.001	0.005	µg/L	0.5	0	82	42 - 152%	PASS	
Benzo[g,h,i]perylene	Total	1.39	1	0.001	0.005	µg/L	1.5	0	93	63 - 133%	PASS	
Benzo[k]fluoranthene	Total	0.675	1	0.001	0.005	µg/L	0.5	0	135	56 - 145%	PASS	
Biphenyl	Total	0.506	1	0.001	0.005	µg/L	0.5	0	101	56 - 119%	PASS	
Chrysene	Total	0.988	1	0.001	0.005	µg/L	1.5	0	66	56 - 141%	PASS	
Dibenz[a,h]anthracene	Total	0.615	1	0.001	0.005	µg/L	0.5	0	123	55 - 150%	PASS	
Dibenzo[a,l]pyrene	Total	0.496	1	0.001	0.005	µg/L	0.5	0	99	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	0.541	1	0.001	0.005	µg/L	0.5	0	108	46 - 126%	PASS		
Fluoranthene	Total	1.58	1	0.001	0.005	µg/L	1.5	0	105	60 - 146%	PASS		
Fluorene	Total	1.93	1	0.001	0.005	µg/L	1.5	0	129	58 - 131%	PASS		
Indeno[1,2,3-cd]pyrene	Total	1.17	1	0.001	0.005	µg/L	1.5	0	78	50 - 151%	PASS		
Naphthalene	Total	1.41	1	0.001	0.005	µg/L	1.5	0	94	41 - 126%	PASS		
Perylene	Total	0.705	1	0.001	0.005	µg/L	0.5	0	141	48 - 141%	PASS		
Phenanthrene	Total	1.83	1	0.001	0.005	µg/L	1.5	0	122	67 - 127%	PASS		
Pyrene	Total	1.48	1	0.001	0.005	µg/L	1.5	0	99	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: 115182-BS2</b>		<b>QAQC Procedural Blank</b>			<b>Matrix: BlankMatrix</b>			<b>Sampled:</b>			<b>Received:</b>			
		Method: EPA 625.1			Batch ID: O-44102			Prepared: 06-Feb-24			Analyzed: 13-Mar-24			
(d10-Acenaphthene)	Total	114	1			% Recovery	100	0	114	27 - 133%	PASS	0	30	PASS
(d10-Phenanthrene)	Total	124	1			% Recovery	100	0	124	43 - 129%	PASS	5	30	PASS
(d12-Chrysene)	Total	91	1			% Recovery	100	0	91	52 - 144%	PASS	16	30	PASS
(d12-Perylene)	Total	155	1			% Recovery	100	0	155	36 - 161%	PASS	2	30	PASS
(d8-Naphthalene)	Total	91	1			% Recovery	100	0	91	25 - 125%	PASS	6	30	PASS
1-Methylnaphthalene	Total	0.554	1	0.001	0.005	µg/L	0.5	0	111	31 - 128%	PASS	12	30	PASS
1-Methylphenanthrene	Total	0.401	1	0.001	0.005	µg/L	0.5	0	80	66 - 127%	PASS	7	30	PASS
2,3,5-Trimethylnaphthalene	Total	0.463	1	0.001	0.005	µg/L	0.5	0	93	55 - 122%	PASS	5	30	PASS
2,6-Dimethylnaphthalene	Total	0.48	1	0.001	0.005	µg/L	0.5	0	96	48 - 120%	PASS	5	30	PASS
2-Methylnaphthalene	Total	1.42	1	0.001	0.005	µg/L	1.5	0	95	47 - 130%	PASS	4	30	PASS
Acenaphthene	Total	1.58	1	0.001	0.005	µg/L	1.5	0	105	53 - 131%	PASS	1	30	PASS
Acenaphthylene	Total	1.62	1	0.001	0.005	µg/L	1.5	0	108	43 - 140%	PASS	0	30	PASS
Anthracene	Total	1.4	1	0.001	0.005	µg/L	1.5	0	93	58 - 135%	PASS	4	30	PASS
Benz[a]anthracene	Total	0.483	1	0.001	0.005	µg/L	0.5	0	97	55 - 145%	PASS	9	30	PASS
Benzo[a]pyrene	Total	1.66	1	0.001	0.005	µg/L	1.5	0	111	51 - 143%	PASS	0	30	PASS
Benzo[b]fluoranthene	Total	0.279	1	0.001	0.005	µg/L	0.5	0	56	46 - 165%	PASS	5	30	PASS
Benzo[e]pyrene	Total	0.402	1	0.001	0.005	µg/L	0.5	0	80	42 - 152%	PASS	2	30	PASS
Benzo[g,h,i]perylene	Total	1.34	1	0.001	0.005	µg/L	1.5	0	89	63 - 133%	PASS	4	30	PASS
Benzo[k]fluoranthene	Total	0.611	1	0.001	0.005	µg/L	0.5	0	122	56 - 145%	PASS	11	30	PASS
Biphenyl	Total	0.532	1	0.001	0.005	µg/L	0.5	0	106	56 - 119%	PASS	5	30	PASS
Chrysene	Total	0.895	1	0.001	0.005	µg/L	1.5	0	60	56 - 141%	PASS	10	30	PASS
Dibenz[a,h]anthracene	Total	0.596	1	0.001	0.005	µg/L	0.5	0	119	55 - 150%	PASS	3	30	PASS
Dibenzo[a,l]pyrene	Total	0.561	1	0.001	0.005	µg/L	0.5	0	112	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		
Dibenzothiophene	Total	0.522	1	0.001	0.005	µg/L	0.5	0	104	46 - 126%	PASS	4	30	PASS
Fluoranthene	Total	1.47	1	0.001	0.005	µg/L	1.5	0	98	60 - 146%	PASS	7	30	PASS
Fluorene	Total	1.9	1	0.001	0.005	µg/L	1.5	0	127	58 - 131%	PASS	2	30	PASS
Indeno[1,2,3-cd]pyrene	Total	1.19	1	0.001	0.005	µg/L	1.5	0	79	50 - 151%	PASS	1	30	PASS
Naphthalene	Total	1.48	1	0.001	0.005	µg/L	1.5	0	99	41 - 126%	PASS	5	30	PASS
Perylene	Total	0.698	1	0.001	0.005	µg/L	0.5	0	140	48 - 141%	PASS	1	30	PASS
Phenanthrene	Total	1.75	1	0.001	0.005	µg/L	1.5	0	117	67 - 127%	PASS	4	30	PASS
Pyrene	Total	1.36	1	0.001	0.005	µg/L	1.5	0	91	54 - 156%	PASS	8	30	PASS

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# PHYSIS

**TENTATIVELY IDENTIFIED COMPOUNDS**

ENVIRONMENTAL LABORATORIES, INC.

*Innovative Solutions for Nature*

Sample ID: Lab Blank B1\_44102

Retention Time	Area (% of total)	Concentration (ng/L)	Library/ID	Cas Number	Match Quality (%)
35.5604	3.6729	1111	Anthracene-D10	1517-22-2	89
10.6365	7.2543	2195	1,5-Heptadien-4-one, 3,3,6-trimethyl-	546-49-6	81
10.0103	1.7920	542	3-Pentanol, 3-methyl-	77-74-7	85
10.2727	0.8221	249	Hydroperoxide, 1-ethylbutyl	24254-56-6	93
32.2184	0.3775	114	Benzoic acid, 2-ethylhexyl ester	5444-75-7	94

Concentration estimated using the response for Anthracene-d10

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Sample ID: 115186

Retention Time	Area (% of total)	Concentration (ng/L)	Library/ID	Cas Number	Match Quality (%)
35.1519	0.3032	1111	Anthracene-D10-	1517-22-2	89
10.0107	24.8306	90988	Cyclopentane, 1,2,3,4,5-pentamethyl-	1000152-79-7	90
10.4558	20.0903	73618	Cyclohexane, 1-methyl-3-propyl-	4291-80-9	90
10.3958	9.0759	33257	Octane, 3-methyl-6-methylene-	74630-07-2	84
10.1884	5.9337	21743	1H-Tetrazole	288-94-8	82
10.2162	3.9052	14310	1H-Pyrazole, 4,5-dihydro-3-methyl-	1911-30-4	83
10.6377	3.9031	14302	3-Hexene-2,5-diol	7319-23-5	81
10.3373	0.4096	1501	2-Propenoic acid, ethenyl ester	2177-18-6	81
10.0164	0.3533	1295	Propane, 2,2-dimethoxy-	77-76-9	81
10.9767	0.1060	388	Furan, 2-methoxy-	25414-22-6	84
11.4878	0.0455	167	Pentane	109-66-0	81
11.4878	0.0424	155	Butane, 2-methyl-	78-78-4	82

Concentration estimated using the response for Anthracene-d10

Sample ID: 115183

Retention Time	Area (% of total)	Concentration (ng/L)	Library/ID	Cas Number	Match Quality (%)
35.1484	0.9611	1111	Anthracene-D10-	1517-22-2	92
10.0068	21.1311	24430	Cyclopentane, 1,2,3,4,5-pentamethyl-	1000152-79-7	90
10.4533	16.4694	19041	2-Pyrazoline, 1-butyl-5-methyl-	22581-50-6	86
10.3939	7.6829	8882	Octane, 3-methyl-6-methylene-	74630-07-2	84
10.2124	4.6765	5407	2,3,3-Trimethyl-1-hexene	1000113-52-1	84
10.1847	4.0079	4634	N-Vinylformamide	13162-05-5	89
10.1847	3.6362	4204	Methoxyacetoneitrile	1738-36-9	87
10.6366	3.2264	3730	3-Hexene-2,5-diol	7319-23-5	81
10.7329	0.9828	1136	2-Pyrrolidinone, 1-methyl-	872-50-4	89
10.0137	0.3377	390	Borane, dimethoxy-	4542-61-4	82
10.0482	0.2887	334	Alanine, N-methyl-n-propargyloxycarbonyl-, heptyl ester	1000329-36-0	83
11.5322	0.1237	143	Cyclohexane, (1,2-dimethylpropyl)-	51284-29-8	82
10.7607	0.0954	110	5-Isopropyl-3,3-dimethyl-2-methylene-2,3-dihydrofuran	81250-44-4	82

Concentration estimated using the response for Anthracene-d10

Sample ID: 115184

Retention Time	Area (% of total)	Concentration (ng/L)	Library/ID	Cas Number	Match Quality (%)
35.1610	0.5271	1000	Anthracene-D10	1517-22-2	92
10.0122	19.9923	37931	Cyclopentane, 1,2,3,4,5-pentamethyl-	1000152-79-7	90
10.4577	14.8953	28260	Cyclohexane, 1-methyl-3-propyl-	4291-80-9	87
10.3982	6.4388	12216	2,4,4-Trimethyl-1-hexene	51174-12-0	83
10.3980	6.4317	12203	1H-Tetrazole	288-94-8	90
10.2188	2.7179	5157	1H-Pyrazole, 4,5-dihydro-3-methyl-	1911-30-4	85
10.7374	0.6454	1225	2-Pyrrolidinone, 1-methyl-	872-50-4	85
10.0168	0.2527	479	Propane, 2,2-dimethoxy-	77-76-9	80
16.4571	0.1461	277	Cyclohexane, 1,2,4,5-tetraethyl-, (1.alpha.,2.alpha.,4.alpha.,5.alpha.)-	61142-24-3	82
10.9796	0.1005	191	3-Methyl-1-[(1H)-1,2,4-triazol-1-yl]butan-2-one	64922-02-7	84
10.9790	0.0992	188	Cyclopropane, 1,1,2,3-tetramethyl-	74752-93-5	82
10.7655	0.0936	178	5-Isopropyl-3,3-dimethyl-2-methylene-2,3-dihydrofuran	81250-44-4	83

Concentration estimated using the response for Anthracene-d10



Sample ID: 115185

Retention Time	Area (% of total)	Concentration (ng/L)	Library/ID	Cas Number	Match Quality (%)
35.1715	0.3649	1111	Anthracene-D10	1517-22-2	91
10.0140	23.9171	72830	Cyclopentane, 1,2,3,4,5-pentamethyl-	1000152-79-7	90
10.4589	17.5281	53375	Cyclohexane, 1-methyl-3-propyl-	4291-80-9	87
10.3986	8.9649	27299	Pentane, 3-ethyl-	617-78-7	85
10.3986	8.9638	27296	2,4,4-Trimethyl-1-hexene	51174-12-0	85
10.2190	3.3035	10059	1H-Pyrazole, 4,5-dihydro-3-methyl-	1911-30-4	85
10.6375	2.7152	8268	2-Pentene, 2,4-dimethyl-	625-65-0	81
10.0786	0.8942	2723	2-Pyrazoline, 1-isobutyl-3-methyl-	26964-53-4	81
10.9787	0.1620	493	9-Oxabicyclo[6.1.0]nonane	286-62-4	83
10.9783	0.1440	439	Nitrous acid, cyclohexyl ester	5156-40-1	83
10.7649	0.1139	347	5-Isopropyl-3,3-dimethyl-2-methylene-2,3-dihydrofuran	81250-44-4	82

Concentration estimated using the response for Anthracene-d10

# PERFORMANCE CHAIN OF CUSTODY

TERRA ENVIRONMENTAL LABORATORIES, INC. AURA

*Innovative Solutions for Nature*

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

**Chain of Custody Record**



Environment Testing

**Client Information (Sub Contract Lab)**

Client Contact: Shipplng/Receiving  
Company: Physis Environmental Laboratories  
Address: 1904 Wright Circle,  
City: Anaheim  
State, Zip: CA, 92806  
Phone: PO #:  
Email: WO #:  
Project Name: RED-HILL  
Site: Honolulu BWS Sites

Sampler: Arada, Rachelle  
Phone: E-Mail: Rachelle.Arada@et.eurofins.com  
Accreditations Required (See note): State - Hawaii

Carrier Tracking No(s):  
State of Origin: Hawaii

Page: 1 of 1  
Job #: 380-80984-1

COG No: 380-104457.1  
Page: 1 of 1

Due Date Requested: 2/19/2024  
TAT Requested (days):

Analysis Requested

Field Filtered Sample (Yes or No)  
Perform MS/MSD (Yes or No)  
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 - EDA  
M - Hexane  
N - None  
O - AshK02  
P - Na2O/S  
Q - Na2SO3  
R - Na2S2O3  
S - H2SO4  
T - TSP Dodecahydrate  
U - Acetone  
V - MeOH  
W - pH 4.5  
Y - Trizma  
Z - other (specify)

**Sample Identification - Client ID (Lab ID)**

Sample ID	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Mercur, Sulfid, Oxidant, Arald)	Preservation Code	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUB (625 PAH Physis LL (EAL) + TICs)/ 625 PAH Physis LL (EAL) + TICs	Total Number of containers	Special Instructions/Note:
MOANALUA WELLS (380-80984-1)	1/22/24	09:49	Hawaiian	Water		X	X		2	See Attached Instructions
AIEA GULCH WELLS PUMP 2 (380-80984-2)	1/22/24	10:45	Hawaiian	Water		X	X		2	See Attached Instructions
AIEA WELLS PUMPS 1&2 (260) P2 (380-80984-3)	1/22/24	11:13	Hawaiian	Water		X	X		2	See Attached Instructions
HALAWA WELLS UNITS 1 & 2 P1 (380-80984-4)	1/22/24	10:21	Hawaiian	Water		X	X		2	See Attached Instructions

**Possible Hazard Identification**

Note: Since laboratory accreditations are subject to change, Eurofins Eaton Analytical, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/matrix being analyzed, the samples must be shipped back to the Eurofins Eaton Analytical, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Eaton Analytical, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Eaton Analytical, LLC.

**Unconfirmed**

Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2  
Special Instructions/QC Requirements:  Return To Client  Disposal By Lab  Archive For \_\_\_\_\_ Months

**Empty Kit Relinquished by:**

Date: 2/1/24 11:27  
Company: BSA  
Received by: [Signature]  
Date/Time: 2/1/24 11:25  
Company: ANALYSIS

**Relinquished by:**

Date/Time: [Signature]  
Company: [Signature]

**Relinquished by:**

Date/Time: [Signature]  
Company: [Signature]

**Custody Seals Intact:**

Δ Yes Δ No Custody Seal No.: Cooler Temperature(s) °C and Other Remarks:



Project Iteration ID: 1407003-483  
 Client Name: Eurofins Eaton Analytical  
 Project Name: RED-HILL Project # 38001111 Job # 380-80984-1  
 COC Page Number: 2 of 2  
 Bottle Label Color: NA

**Sample Receipt Summary**

**Receiving Info**

1. Initials Received By: CR
2. Date Received: 2/1/24
3. Time Received: 11:23 am
4. Client Name: Intera Inc
5. Courier Information: (Please circle)
  - Client
  - **FedEx**
  - UPS
  - GSO/GLS
  - Area Fast
  - Ontrac
  - DRS
  - PAMS
6. Container Information: (Please put the # of containers or circle none)
  - i. Start Time: \_\_\_\_\_
  - ii. End Time: \_\_\_\_\_
  - iii. Total Mileage: \_\_\_\_\_
  - iv. Number of Pickups: \_\_\_\_\_
7. What type of ice was used: (Please circle any that apply)
  - **1** Cooler
  - \_\_\_ Styrofoam Cooler
  - \_\_\_ Boxes
  - None
  - \_\_\_ Carboy(s)
  - \_\_\_ Carboy Trash Can(s)
  - \_\_\_ Carboy Cap(s)
  - Other \_\_\_\_\_
8. Randomly Selected Samples Temperature (°C): 2.6
  - **Wet Ice**
  - Blue Ice
  - Dry Ice
  - Water
  - None

**Inspection Info**

1. Initials Inspected By: CR

**Sample Integrity Upon Receipt:**

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

**Notes:**

*Received outside Holding Time.*

## Rich Hanken

---

**From:** Rachelle Arada <Rachelle.Arada@et.eurofinsus.com> on behalf of Rachelle Arada  
**Sent:** Thursday, February 1, 2024 12:41 PM  
**To:** Rich Hanken  
**Cc:** Project Managers; Alina Leon  
**Subject:** RE: RED-HILL Project # 38001111 Job # 380-80984-1

**Categories:** Incomming

Hi Rich,

We confirmed with the client and samples were collected 1/29/24 instead of 1/22/24. Please proceed.

Sincerely,

**Rachelle Arada**  
Project Manager

Learn more about eCOC – our NEW electronic COC application



### Eurofins Drinking Water Testing

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Pomona, CA 91768  
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Mobile: +1 626 419 6014

Email: [Rachelle.Arada@ET.EurofinsUS.com](mailto:Rachelle.Arada@ET.EurofinsUS.com)

Website: [www.EurofinsUS.com/Eaton](http://www.EurofinsUS.com/Eaton)

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---

**From:** Rich Hanken <richhanken@physislabs.com>  
**Sent:** Thursday, February 1, 2024 12:36 PM  
**To:** Rachelle Arada <Rachelle.Arada@et.eurofinsus.com>  
**Cc:** Project Managers <pm@physislabs.com>  
**Subject:** RED-HILL Project # 38001111 Job # 380-80984-1  
**Importance:** High

You don't often get email from [richhanken@physislabs.com](mailto:richhanken@physislabs.com). [Learn why this is important](#)

**CAUTION: EXTERNAL EMAIL** - Sent from an email domain that is not formally trusted by Eurofins.

Do not click on links or open attachments unless you recognise the sender and are certain that the content is safe.

Hello Rachelle,

We just received these 4 samples but they received outside of Holding Time. Sampled 1/22/24, Received 2/1/24, so this would be day 10 and the organics have 7 day Holding Time.

Do you still want us to analyze these 4 samples?

Please let us know ASAP, thank you.

Rich

**Richard G. Hanken**  
Business Manager - Project Integrator  
(714) 602-5320 ext. 212  
[Richhanken@physislabs.com](mailto:Richhanken@physislabs.com)



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## Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-80984-2

SDG Number: 625, 8015

**Login Number: 80984**

**List Number: 1**

**Creator: Elyas, Matthew**

**List Source: Eurofins Eaton Analytical Pomona**

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	False	Refer to NCM for affected items.
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: 380-80984-2

SDG Number: 625, 8015

**Login Number: 80984**

**List Number: 2**

**Creator: Khana, Piyush**

**List Source: Eurofins Calscience**

**List Creation: 01/31/24 06:08 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	Seal present with no number.
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.4
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	