

ANALYTICAL REPORT

PREPARED FOR

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JOB DESCRIPTION

RED-HILL
8015, 625

JOB NUMBER

380-75800-2

Eurofins Eaton Analytical Pomona

Job Notes

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

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

Compliance Statement

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

Authorization



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Definitions/Glossary

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

Job ID: 380-75800-2
SDG: 8015, 625

Glossary

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

Case Narrative

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

Job ID: 380-75800-2

Job ID: 380-75800-2

Eurofins Eaton Analytical Pomona

Job Narrative 380-75800-2

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

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

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

Receipt

The samples were received on 12/20/2023 10:30 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 1.3°C, 2.4°C, 3.0°C and 3.4°C

Receipt Exceptions

One or more containers for the following sample was received broken or leaking: HALAWA WELLS UNITS 1&2 P1 (380-75800-4). One of four vials received broken for method 8015 GRO.

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: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-395858. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch.

Method 8015B_DRO_LL_CS: A portion of the following samples were used for analysis, rather than testing the entire sample amount in the original container, due to the samples were prepared using an exact volume as opposed to the volume received: MOANALUA WELLS (380-75800-1), AIEA GULCH WELLS PUMP 2 (380-75800-2), AIEA WELLS PUMPS 1&2 (260) P2 (380-75800-3) and HALAWA WELLS UNITS 1&2 P1 (380-75800-4). As such, the required solvent rinse of the original container could not be performed.

Method 8015B_DRO_LL_CS: A portion of the following samples were used for analysis, rather than testing the entire sample amount in the original container, due to the samples were prepared using an exact volume as opposed to the volume received: MOANALUA WELLS (380-75800-1), AIEA GULCH WELLS PUMP 2 (380-75800-2), AIEA WELLS PUMPS 1&2 (260) P2 (380-75800-3) and HALAWA WELLS UNITS 1&2 P1 (380-75800-4). As such, the required solvent rinse of the original container could not be 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

Job ID: 380-75800-2
SDG: 8015, 625

Client Sample ID: MOANALUA WELLS **Lab Sample ID: 380-75800-1**

No Detections.

Client Sample ID: AIEA GULCH WELLS PUMP 2 **Lab Sample ID: 380-75800-2**

No Detections.

Client Sample ID: AIEA WELLS PUMPS 1&2 (260) P2 **Lab Sample ID: 380-75800-3**

No Detections.

Client Sample ID: HALAWA WELLS UNITS 1&2 P1 **Lab Sample ID: 380-75800-4**

No Detections.

Client Sample ID: TB MOANALUA WELLS **Lab Sample ID: 380-75800-5**

No Detections.

Client Sample ID: TB AIEA GULCH WELLS PUMP 2 **Lab Sample ID: 380-75800-6**

No Detections.

Client Sample ID: TB AIEA WELLS PUMPS 1&2 (260) P2 **Lab Sample ID: 380-75800-7**

No Detections.

Client Sample ID: TB HALAWA WELLS UNITS 1&2 P1 **Lab Sample ID: 380-75800-8**

No Detections.

This Detection Summary does not include radiochemical test results.

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Client Sample Results

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

Job ID: 380-75800-2
SDG: 8015, 625

Client Sample ID: MOANALUA WELLS

Lab Sample ID: 380-75800-1

Date Collected: 12/18/23 10:05

Matrix: Water

Date Received: 12/20/23 10:30

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			12/28/23 15:06	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	89		38 - 134				12/28/23 15:06	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (C10-C24)	<24		24	ug/L		12/22/23 16:33	01/05/24 03:32	1
Motor Oil Range Organics [C24-C36]	<24		24	ug/L		12/22/23 16:33	01/05/24 03:32	1
C8-C18	<24		24	ug/L		12/22/23 16:33	01/05/24 03:32	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
n-Octacosane (Surr)	88		60 - 130			12/22/23 16:33	01/05/24 03:32	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		12/25/23 00:00	01/01/24 05:52	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 05:52	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 05:52	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 05:52	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 05:52	1
Acenaphthene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 05:52	1
Acenaphthylene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 05:52	1
Anthracene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 05:52	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 05:52	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 05:52	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 05:52	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 05:52	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 05:52	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 05:52	1
Biphenyl	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 05:52	1
Chrysene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 05:52	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 05:52	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 05:52	1
Dibenzothiophene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 05:52	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		12/25/23 00:00	01/01/24 05:52	1
Fluoranthene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 05:52	1
Fluorene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 05:52	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 05:52	1
Naphthalene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 05:52	1
Perylene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 05:52	1
Phenanthrene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 05:52	1
Pyrene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 05:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	71		27 - 133				12/25/23 00:00	01/01/24 05:52	1
(d10-Phenanthrene)	82		43 - 129				12/25/23 00:00	01/01/24 05:52	1
(d12-Chrysene)	91		52 - 144				12/25/23 00:00	01/01/24 05:52	1
(d12-Perylene)	87		36 - 161				12/25/23 00:00	01/01/24 05:52	1
(d8-Naphthalene)	57		25 - 125				12/25/23 00:00	01/01/24 05:52	1

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Client Sample Results

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

Job ID: 380-75800-2
SDG: 8015, 625

Client Sample ID: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-75800-2

Date Collected: 12/18/23 11:12

Matrix: Water

Date Received: 12/20/23 10:30

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			12/28/23 15:32	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	88		38 - 134				12/28/23 15:32	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (C10-C24)	<25		25	ug/L		12/22/23 16:33	01/05/24 03:53	1
Motor Oil Range Organics [C24-C36]	<25		25	ug/L		12/22/23 16:33	01/05/24 03:53	1
C8-C18	<25		25	ug/L		12/22/23 16:33	01/05/24 03:53	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
n-Octacosane (Surr)	100		60 - 130			12/22/23 16:33	01/05/24 03:53	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		12/25/23 00:00	01/01/24 07:36	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 07:36	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 07:36	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 07:36	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 07:36	1
Acenaphthene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 07:36	1
Acenaphthylene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 07:36	1
Anthracene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 07:36	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 07:36	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 07:36	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 07:36	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 07:36	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 07:36	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 07:36	1
Biphenyl	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 07:36	1
Chrysene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 07:36	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 07:36	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 07:36	1
Dibenzothiophene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 07:36	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		12/25/23 00:00	01/01/24 07:36	1
Fluoranthene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 07:36	1
Fluorene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 07:36	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 07:36	1
Naphthalene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 07:36	1
Perylene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 07:36	1
Phenanthrene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 07:36	1
Pyrene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 07:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	69		27 - 133				12/25/23 00:00	01/01/24 07:36	1
(d10-Phenanthrene)	72		43 - 129				12/25/23 00:00	01/01/24 07:36	1
(d12-Chrysene)	89		52 - 144				12/25/23 00:00	01/01/24 07:36	1
(d12-Perylene)	83		36 - 161				12/25/23 00:00	01/01/24 07:36	1
(d8-Naphthalene)	54		25 - 125				12/25/23 00:00	01/01/24 07:36	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-75800-2
SDG: 8015, 625

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

Lab Sample ID: 380-75800-3

Date Collected: 12/18/23 11:37

Matrix: Water

Date Received: 12/20/23 10:30

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			12/28/23 15:59	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		38 - 134				12/28/23 15:59	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		12/22/23 16:33	01/05/24 04:14	1
Motor Oil Range Organics [C24-C36]	<26		26	ug/L		12/22/23 16:33	01/05/24 04:14	1
C8-C18	<26		26	ug/L		12/22/23 16:33	01/05/24 04:14	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
n-Octacosane (Surr)	93		60 - 130			12/22/23 16:33	01/05/24 04:14	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		12/25/23 00:00	01/01/24 09:20	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 09:20	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 09:20	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 09:20	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 09:20	1
Acenaphthene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 09:20	1
Acenaphthylene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 09:20	1
Anthracene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 09:20	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 09:20	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 09:20	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 09:20	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 09:20	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 09:20	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 09:20	1
Biphenyl	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 09:20	1
Chrysene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 09:20	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 09:20	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 09:20	1
Dibenzothiophene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 09:20	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		12/25/23 00:00	01/01/24 09:20	1
Fluoranthene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 09:20	1
Fluorene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 09:20	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 09:20	1
Naphthalene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 09:20	1
Perylene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 09:20	1
Phenanthrene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 09:20	1
Pyrene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 09:20	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	74		27 - 133				12/25/23 00:00	01/01/24 09:20	1
(d10-Phenanthrene)	84		43 - 129				12/25/23 00:00	01/01/24 09:20	1
(d12-Chrysene)	97		52 - 144				12/25/23 00:00	01/01/24 09:20	1
(d12-Perylene)	92		36 - 161				12/25/23 00:00	01/01/24 09:20	1
(d8-Naphthalene)	62		25 - 125				12/25/23 00:00	01/01/24 09:20	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-75800-2
SDG: 8015, 625

Client Sample ID: HALAWA WELLS UNITS 1&2 P1

Lab Sample ID: 380-75800-4

Date Collected: 12/18/23 10:39

Matrix: Water

Date Received: 12/20/23 10:30

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			12/28/23 16:25	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	67		38 - 134				12/28/23 16:25	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)	<24		24	ug/L		12/22/23 16:33	01/05/24 04:35	1
Motor Oil Range Organics [C24-C36]	<24		24	ug/L		12/22/23 16:33	01/05/24 04:35	1
C8-C18	<24		24	ug/L		12/22/23 16:33	01/05/24 04:35	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
n-Octacosane (Surr)	90		60 - 130			12/22/23 16:33	01/05/24 04:35	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		12/25/23 00:00	01/01/24 11:05	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 11:05	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 11:05	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 11:05	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 11:05	1
Acenaphthene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 11:05	1
Acenaphthylene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 11:05	1
Anthracene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 11:05	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 11:05	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 11:05	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 11:05	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 11:05	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 11:05	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 11:05	1
Biphenyl	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 11:05	1
Chrysene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 11:05	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 11:05	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 11:05	1
Dibenzothiophene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 11:05	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		12/25/23 00:00	01/01/24 11:05	1
Fluoranthene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 11:05	1
Fluorene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 11:05	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 11:05	1
Naphthalene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 11:05	1
Perylene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 11:05	1
Phenanthrene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 11:05	1
Pyrene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 11:05	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	75		27 - 133				12/25/23 00:00	01/01/24 11:05	1
(d10-Phenanthrene)	84		43 - 129				12/25/23 00:00	01/01/24 11:05	1
(d12-Chrysene)	94		52 - 144				12/25/23 00:00	01/01/24 11:05	1
(d12-Perylene)	87		36 - 161				12/25/23 00:00	01/01/24 11:05	1
(d8-Naphthalene)	61		25 - 125				12/25/23 00:00	01/01/24 11:05	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-75800-2
SDG: 8015, 625

Client Sample ID: TB MOANALUA WELLS

Lab Sample ID: 380-75800-5

Date Collected: 12/18/23 10:05

Matrix: Water

Date Received: 12/20/23 10:30

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			12/28/23 13:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	80		38 - 134		12/28/23 13:20	1

Client Sample ID: TB AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-75800-6

Date Collected: 12/18/23 11:12

Matrix: Water

Date Received: 12/20/23 10:30

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			12/28/23 13:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	89		38 - 134		12/28/23 13:47	1

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

Lab Sample ID: 380-75800-7

Date Collected: 12/18/23 11:37

Matrix: Water

Date Received: 12/20/23 10:30

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			12/28/23 14:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	73		38 - 134		12/28/23 14:13	1

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

Lab Sample ID: 380-75800-8

Date Collected: 12/18/23 10:39

Matrix: Water

Date Received: 12/20/23 10:30

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			12/28/23 14:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	87		38 - 134		12/28/23 14:39	1

Surrogate Summary

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

Job ID: 380-75800-2
SDG: 8015, 625

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)					
			380-75800-1	MOANALUA WELLS	89		
380-75800-1 MS	MOANALUA WELLS	101					
380-75800-1 MSD	MOANALUA WELLS	98					
380-75800-2	AIEA GULCH WELLS PUMP 2	88					
380-75800-3	AIEA WELLS PUMPS 1&2 (260) P2	90					
380-75800-4	HALAWA WELLS UNITS 1&2 P1	67					
380-75800-5	TB MOANALUA WELLS	80					
380-75800-6	TB AIEA GULCH WELLS PUMP 2	89					
380-75800-7	TB AIEA WELLS PUMPS 1&2 (260) P2	73					
380-75800-8	TB HALAWA WELLS UNITS 1&2 P1	87					
LCS 570-396699/4	Lab Control Sample	77					
LCSD 570-396699/5	Lab Control Sample Dup	103					
MB 570-396699/6	Method Blank	85					
MRL 570-396699/3	Lab Control Sample	88					
Surrogate Legend							
BFB = 4-Bromofluorobenzene (Surr)							

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

Matrix: Water

Prep Type: Total/NA

			Percent Surrogate Recovery (Acceptance Limits)				
Lab Sample ID	Client Sample ID	OTCSN1 (60-130)					
			380-75800-1	MOANALUA WELLS	88		
380-75800-2	AIEA GULCH WELLS PUMP 2	100					
380-75800-3	AIEA WELLS PUMPS 1&2 (260) P2	93					
380-75800-4	HALAWA WELLS UNITS 1&2 P1	90					
LCS 570-395858/2-A	Lab Control Sample	104					
LCSD 570-395858/3-A	Lab Control Sample Dup	105					
MB 570-395858/1-A	Method Blank	111					
MRL 570-395858/4-A	Lab Control Sample	96					
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	Acenaphtl	Phenanth	CRY	NPT	PRY
		(27-133)	(43-129)	(52-144)	(25-125)	(36-161)
113630-B1	Method Blank	96	93	95	86	96
113630-BS1	Lab Control Sample	88	90	97	74	89
113630-BS2	Lab Control Sample Dup	90	95	105	79	97
Surrogate Legend						

Eurofins Eaton Analytical Pomona

Surrogate Summary

Client: City & County of Honolulu

Job ID: 380-75800-2

Project/Site: RED-HILL

SDG: 8015, 625

(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: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)				
		Acenaphthl (27-133)	Phenanth (43-129)	CRY (52-144)	NPT (25-125)	PRY (36-161)
380-75800-1	MOANALUA WELLS	71	82	91	57	87
380-75800-2	AIEA GULCH WELLS PUMP 2	69	72	89	54	83
380-75800-3	AIEA WELLS PUMPS 1&2 (260) P2	74	84	97	62	92
380-75800-4	HALAWA WELLS UNITS 1&2 P1	75	84	94	61	87

Surrogate Legend

(d10-Acenaphthene) = (d10-Acenaphthene)

(d10-Phenanthrene) = (d10-Phenanthrene)

CRY = (d12-Chrysene)

NPT = (d8-Naphthalene)

PRY = (d12-Perylene)

QC Sample Results

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

Job ID: 380-75800-2
SDG: 8015, 625

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

Lab Sample ID: MB 570-396699/6
Matrix: Water
Analysis Batch: 396699

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			12/28/23 12:27	1
Surrogate	MB %Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	85		38 - 134				12/28/23 12:27	1

Lab Sample ID: LCS 570-396699/4
Matrix: Water
Analysis Batch: 396699

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (C4-C13)	389	406		ug/L		105	78 - 120
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene (Surr)	77		38 - 134				

Lab Sample ID: LCSD 570-396699/5
Matrix: Water
Analysis Batch: 396699

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (C4-C13)	389	410		ug/L		105	78 - 120	1	10
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	103		38 - 134						

Lab Sample ID: MRL 570-396699/3
Matrix: Water
Analysis Batch: 396699

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (C4-C13)	10.0	11.2		ug/L		112	50 - 150
Surrogate	MRL %Recovery	MRL Qualifier	Limits				
4-Bromofluorobenzene (Surr)	88		38 - 134				

Lab Sample ID: 380-75800-1 MS
Matrix: Water
Analysis Batch: 396699

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (C4-C13)	<10		389	406		ug/L		104	68 - 122
Surrogate	MS %Recovery	MS Qualifier	Limits						
4-Bromofluorobenzene (Surr)	101		38 - 134						

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-75800-2
SDG: 8015, 625

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

Lab Sample ID: 380-75800-1 MSD
Matrix: Water
Analysis Batch: 396699

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (C4-C13)	<10		389	369		ug/L		95	68 - 122	10	18
Surrogate	%Recovery	MSD Qualifier	MSD Limits								
4-Bromofluorobenzene (Surr)	98		38 - 134								

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

Lab Sample ID: MB 570-395858/1-A
Matrix: Water
Analysis Batch: 398593

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 395858

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (C10-C24)	<25		25	ug/L		12/22/23 16:32	01/05/24 00:02	1
Motor Oil Range Organics [C24-C36]	<25		25	ug/L		12/22/23 16:32	01/05/24 00:02	1
C8-C18	<25		25	ug/L		12/22/23 16:32	01/05/24 00:02	1
Surrogate	%Recovery	MB Qualifier	MB Limits	Prepared	Analyzed	Dil Fac		
n-Octacosane (Surr)	111		60 - 130	12/22/23 16:32	01/05/24 00:02	1		

Lab Sample ID: LCS 570-395858/2-A
Matrix: Water
Analysis Batch: 398593

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 395858

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
C10-C28	1600	1470		ug/L		92	56 - 127
Surrogate	%Recovery	LCS Qualifier	LCS Limits				
n-Octacosane (Surr)	104		60 - 130				

Lab Sample ID: LCSD 570-395858/3-A
Matrix: Water
Analysis Batch: 398593

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 395858

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C10-C28	1600	1480		ug/L		93	56 - 127	1	23
Surrogate	%Recovery	LCSD Qualifier	LCSD Limits						
n-Octacosane (Surr)	105		60 - 130						

Lab Sample ID: MRL 570-395858/4-A
Matrix: Water
Analysis Batch: 398593

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 395858

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
C10-C28	0.0200	0.0286		mg/L		143	50 - 150

QC Sample Results

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

Job ID: 380-75800-2
SDG: 8015, 625

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

Lab Sample ID: MRL 570-395858/4-A
Matrix: Water
Analysis Batch: 398593

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 395858

Surrogate	%Recovery	MRL MRL Qualifier	Limits
<i>n</i> -Octacosane (Surr)	96		60 - 130

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

Lab Sample ID: 113630-B1
Matrix: BlankMatrix
Analysis Batch: O-44044

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: O-44044_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 00:38	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 00:38	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 00:38	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 00:38	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 00:38	1
Acenaphthene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 00:38	1
Acenaphthylene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 00:38	1
Anthracene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 00:38	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 00:38	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 00:38	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 00:38	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 00:38	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 00:38	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 00:38	1
Biphenyl	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 00:38	1
Chrysene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 00:38	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 00:38	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 00:38	1
Dibenzothiophene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 00:38	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		12/25/23 00:00	01/01/24 00:38	1
Fluoranthene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 00:38	1
Fluorene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 00:38	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 00:38	1
Naphthalene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 00:38	1
Perylene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 00:38	1
Phenanthrene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 00:38	1
Pyrene	ND		0.005	0.001	µg/L		12/25/23 00:00	01/01/24 00:38	1

Surrogate	%Recovery	Blank Blank Qualifier	Limits	Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	96		27 - 133	12/25/23 00:00	01/01/24 00:38	1
(d10-Phenanthrene)	93		43 - 129	12/25/23 00:00	01/01/24 00:38	1
(d12-Chrysene)	95		52 - 144	12/25/23 00:00	01/01/24 00:38	1
(d12-Perylene)	96		36 - 161	12/25/23 00:00	01/01/24 00:38	1
(d8-Naphthalene)	86		25 - 125	12/25/23 00:00	01/01/24 00:38	1

QC Sample Results

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

Job ID: 380-75800-2
SDG: 8015, 625

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

Lab Sample ID: 113630-BS1
Matrix: BlankMatrix
Analysis Batch: O-44044

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: O-44044_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1-Methylnaphthalene	0.5	0.391		µg/L		78	31 - 128
1-Methylphenanthrene	0.5	0.455		µg/L		91	66 - 127
2,3,5-Trimethylnaphthalene	0.5	0.397		µg/L		79	55 - 122
2,6-Dimethylnaphthalene	0.5	0.422		µg/L		84	48 - 120
2-Methylnaphthalene	0.5	0.395		µg/L		79	47 - 130
Acenaphthene	0.5	0.423		µg/L		85	53 - 131
Acenaphthylene	0.5	0.411		µg/L		82	43 - 140
Anthracene	0.5	0.423		µg/L		85	58 - 135
Benz[a]anthracene	0.5	0.433		µg/L		87	55 - 145
Benzo[a]pyrene	0.5	0.406		µg/L		81	51 - 143
Benzo[b]fluoranthene	0.5	0.421		µg/L		84	46 - 165
Benzo[e]pyrene	0.5	0.427		µg/L		85	42 - 152
Benzo[g,h,i]perylene	0.5	0.428		µg/L		86	63 - 133
Benzo[k]fluoranthene	0.5	0.396		µg/L		79	56 - 145
Biphenyl	0.5	0.421		µg/L		84	56 - 119
Chrysene	0.5	0.426		µg/L		85	56 - 141
Dibenz[a,h]anthracene	0.5	0.498		µg/L		100	55 - 150
Dibenzo[a,l]pyrene	0.5	0.529		µg/L		106	50 - 150
Dibenzothiophene	0.5	0.421		µg/L		84	46 - 126
Disalicylidenepropanediamine	50	47.5		µg/L		95	50 - 150
Fluoranthene	0.5	0.465		µg/L		93	60 - 146
Fluorene	0.5	0.404		µg/L		81	58 - 131
Indeno[1,2,3-cd]pyrene	0.5	0.487		µg/L		97	50 - 151
Naphthalene	0.5	0.368		µg/L		74	41 - 126
Perylene	0.5	0.415		µg/L		83	48 - 141
Phenanthrene	0.5	0.428		µg/L		86	67 - 127
Pyrene	0.5	0.48		µg/L		96	54 - 156

Surrogate	LCS %Recovery	LCS Qualifier	LCS Limits
(d10-Acenaphthene)	88		27 - 133
(d10-Phenanthrene)	90		43 - 129
(d12-Chrysene)	97		52 - 144
(d12-Perylene)	89		36 - 161
(d8-Naphthalene)	74		25 - 125

Lab Sample ID: 113630-BS2
Matrix: BlankMatrix
Analysis Batch: O-44044

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: O-44044_P

Analyte	Spike Added	LCS DUP Result	LCS DUP Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1-Methylnaphthalene	0.5	0.408		µg/L		82	31 - 128	5	30
1-Methylphenanthrene	0.5	0.472		µg/L		94	66 - 127	3	30
2,3,5-Trimethylnaphthalene	0.5	0.41		µg/L		82	55 - 122	4	30
2,6-Dimethylnaphthalene	0.5	0.436		µg/L		87	48 - 120	4	30
2-Methylnaphthalene	0.5	0.411		µg/L		82	47 - 130	4	30
Acenaphthene	0.5	0.424		µg/L		85	53 - 131	0	30
Acenaphthylene	0.5	0.437		µg/L		87	43 - 140	6	30
Anthracene	0.5	0.44		µg/L		88	58 - 135	3	30

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-75800-2
 SDG: 8015, 625

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

Lab Sample ID: 113630-BS2
Matrix: BlankMatrix
Analysis Batch: O-44044

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: O-44044_P

Analyte	Spike Added	LCS DUP Result	LCS DUP Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
Benz[a]anthracene	0.5	0.46		µg/L		92	55 - 145	6	30	
Benzo[a]pyrene	0.5	0.449		µg/L		90	51 - 143	11	30	
Benzo[b]fluoranthene	0.5	0.454		µg/L		91	46 - 165	8	30	
Benzo[e]pyrene	0.5	0.465		µg/L		93	42 - 152	9	30	
Benzo[g,h,i]perylene	0.5	0.449		µg/L		90	63 - 133	5	30	
Benzo[k]fluoranthene	0.5	0.42		µg/L		84	56 - 145	6	30	
Biphenyl	0.5	0.437		µg/L		87	56 - 119	4	30	
Chrysene	0.5	0.443		µg/L		89	56 - 141	5	30	
Dibenz[a,h]anthracene	0.5	0.522		µg/L		104	55 - 150	4	30	
Dibenzo[a,l]pyrene	0.5	0.542		µg/L		108	50 - 150	2	30	
Dibenzothiophene	0.5	0.439		µg/L		88	46 - 126	5	30	
Disalicylidenepropanediamine	50	54.5		µg/L		109	50 - 150	14	30	
Fluoranthene	0.5	0.488		µg/L		98	60 - 146	5	30	
Fluorene	0.5	0.426		µg/L		85	58 - 131	5	30	
Indeno[1,2,3-cd]pyrene	0.5	0.52		µg/L		104	50 - 151	7	30	
Naphthalene	0.5	0.389		µg/L		78	41 - 126	5	30	
Perylene	0.5	0.435		µg/L		87	48 - 141	5	30	
Phenanthrene	0.5	0.442		µg/L		88	67 - 127	2	30	
Pyrene	0.5	0.503		µg/L		101	54 - 156	5	30	

Surrogate	LCS DUP		Limits
	%Recovery	Qualifier	
(d10-Acenaphthene)	90		27 - 133
(d10-Phenanthrene)	95		43 - 129
(d12-Chrysene)	105		52 - 144
(d12-Perylene)	97		36 - 161
(d8-Naphthalene)	79		25 - 125

QC Association Summary

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

Job ID: 380-75800-2
 SDG: 8015, 625

GC VOA

Analysis Batch: 396699

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-75800-1	MOANALUA WELLS	Total/NA	Water	8015B GRO LL	
380-75800-2	AIEA GULCH WELLS PUMP 2	Total/NA	Water	8015B GRO LL	
380-75800-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Water	8015B GRO LL	
380-75800-4	HALAWA WELLS UNITS 1&2 P1	Total/NA	Water	8015B GRO LL	
380-75800-5	TB MOANALUA WELLS	Total/NA	Water	8015B GRO LL	
380-75800-6	TB AIEA GULCH WELLS PUMP 2	Total/NA	Water	8015B GRO LL	
380-75800-7	TB AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Water	8015B GRO LL	
380-75800-8	TB HALAWA WELLS UNITS 1&2 P1	Total/NA	Water	8015B GRO LL	
MB 570-396699/6	Method Blank	Total/NA	Water	8015B GRO LL	
LCS 570-396699/4	Lab Control Sample	Total/NA	Water	8015B GRO LL	
LCSD 570-396699/5	Lab Control Sample Dup	Total/NA	Water	8015B GRO LL	
MRL 570-396699/3	Lab Control Sample	Total/NA	Water	8015B GRO LL	
380-75800-1 MS	MOANALUA WELLS	Total/NA	Water	8015B GRO LL	
380-75800-1 MSD	MOANALUA WELLS	Total/NA	Water	8015B GRO LL	

GC Semi VOA

Prep Batch: 395858

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-75800-1	MOANALUA WELLS	Total/NA	Water	3510C	
380-75800-2	AIEA GULCH WELLS PUMP 2	Total/NA	Water	3510C	
380-75800-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Water	3510C	
380-75800-4	HALAWA WELLS UNITS 1&2 P1	Total/NA	Water	3510C	
MB 570-395858/1-A	Method Blank	Total/NA	Water	3510C	
LCS 570-395858/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 570-395858/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
MRL 570-395858/4-A	Lab Control Sample	Total/NA	Water	3510C	

Analysis Batch: 398593

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-75800-1	MOANALUA WELLS	Total/NA	Water	8015B	395858
380-75800-2	AIEA GULCH WELLS PUMP 2	Total/NA	Water	8015B	395858
380-75800-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Water	8015B	395858
380-75800-4	HALAWA WELLS UNITS 1&2 P1	Total/NA	Water	8015B	395858
MB 570-395858/1-A	Method Blank	Total/NA	Water	8015B	395858
LCS 570-395858/2-A	Lab Control Sample	Total/NA	Water	8015B	395858
LCSD 570-395858/3-A	Lab Control Sample Dup	Total/NA	Water	8015B	395858
MRL 570-395858/4-A	Lab Control Sample	Total/NA	Water	8015B	395858

Subcontract

Analysis Batch: O-44044

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-75800-1	MOANALUA WELLS	Total/NA	Water	625 PAH Physis LL (EAL) + TICs	O-44044_P
380-75800-2	AIEA GULCH WELLS PUMP 2	Total/NA	Water	625 PAH Physis LL (EAL) + TICs	O-44044_P
380-75800-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Water	625 PAH Physis LL (EAL) + TICs	O-44044_P
380-75800-4	HALAWA WELLS UNITS 1&2 P1	Total/NA	Water	625 PAH Physis LL (EAL) + TICs	O-44044_P
113630-B1	Method Blank	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-44044_P

Eurofins Eaton Analytical Pomona

QC Association Summary

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

Job ID: 380-75800-2
SDG: 8015, 625

Subcontract (Continued)

Analysis Batch: O-44044 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
113630-BS1	Lab Control Sample	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-44044_P
113630-BS2	Lab Control Sample Dup	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-44044_P

Prep Batch: O-44044_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-75800-1	MOANALUA WELLS	Total/NA	Water	EPA_625	
380-75800-2	AIEA GULCH WELLS PUMP 2	Total/NA	Water	EPA_625	
380-75800-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Water	EPA_625	
380-75800-4	HALAWA WELLS UNITS 1&2 P1	Total/NA	Water	EPA_625	
113630-B1	Method Blank	Total/NA	BlankMatrix	EPA_625	
113630-BS1	Lab Control Sample	Total/NA	BlankMatrix	EPA_625	
113630-BS2	Lab Control Sample Dup	Total/NA	BlankMatrix	EPA_625	

Lab Chronicle

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

Job ID: 380-75800-2
SDG: 8015, 625

Client Sample ID: MOANALUA WELLS

Lab Sample ID: 380-75800-1

Date Collected: 12/18/23 10:05

Matrix: Water

Date Received: 12/20/23 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015B GRO LL		1	396699	A9VE	EET CAL 4	12/28/23 15:06
Total/NA	Prep	3510C			395858	JC	EET CAL 4	12/22/23 16:33
Total/NA	Analysis	8015B		1	398593	SP9M	EET CAL 4	01/05/24 03:32
Total/NA	Prep	EPA_625		1	O-44044_P			12/25/23 00:00
Total/NA	Analysis	625 PAH Physis LL (EAL) + TICs		1	O-44044	YC		01/01/24 05:52

Client Sample ID: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-75800-2

Date Collected: 12/18/23 11:12

Matrix: Water

Date Received: 12/20/23 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015B GRO LL		1	396699	A9VE	EET CAL 4	12/28/23 15:32
Total/NA	Prep	3510C			395858	JC	EET CAL 4	12/22/23 16:33
Total/NA	Analysis	8015B		1	398593	SP9M	EET CAL 4	01/05/24 03:53
Total/NA	Prep	EPA_625		1	O-44044_P			12/25/23 00:00
Total/NA	Analysis	625 PAH Physis LL (EAL) + TICs		1	O-44044	YC		01/01/24 07:36

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

Lab Sample ID: 380-75800-3

Date Collected: 12/18/23 11:37

Matrix: Water

Date Received: 12/20/23 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015B GRO LL		1	396699	A9VE	EET CAL 4	12/28/23 15:59
Total/NA	Prep	3510C			395858	JC	EET CAL 4	12/22/23 16:33
Total/NA	Analysis	8015B		1	398593	SP9M	EET CAL 4	01/05/24 04:14
Total/NA	Prep	EPA_625		1	O-44044_P			12/25/23 00:00
Total/NA	Analysis	625 PAH Physis LL (EAL) + TICs		1	O-44044	YC		01/01/24 09:20

Client Sample ID: HALAWA WELLS UNITS 1&2 P1

Lab Sample ID: 380-75800-4

Date Collected: 12/18/23 10:39

Matrix: Water

Date Received: 12/20/23 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015B GRO LL		1	396699	A9VE	EET CAL 4	12/28/23 16:25
Total/NA	Prep	3510C			395858	JC	EET CAL 4	12/22/23 16:33
Total/NA	Analysis	8015B		1	398593	SP9M	EET CAL 4	01/05/24 04:35
Total/NA	Prep	EPA_625		1	O-44044_P			12/25/23 00:00
Total/NA	Analysis	625 PAH Physis LL (EAL) + TICs		1	O-44044	YC		01/01/24 11:05

Lab Chronicle

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

Job ID: 380-75800-2
SDG: 8015, 625

Client Sample ID: TB MOANALUA WELLS

Lab Sample ID: 380-75800-5

Date Collected: 12/18/23 10:05

Matrix: Water

Date Received: 12/20/23 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015B GRO LL		1	396699	A9VE	EET CAL 4	12/28/23 13:20

Client Sample ID: TB AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-75800-6

Date Collected: 12/18/23 11:12

Matrix: Water

Date Received: 12/20/23 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015B GRO LL		1	396699	A9VE	EET CAL 4	12/28/23 13:47

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

Lab Sample ID: 380-75800-7

Date Collected: 12/18/23 11:37

Matrix: Water

Date Received: 12/20/23 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015B GRO LL		1	396699	A9VE	EET CAL 4	12/28/23 14:13

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

Lab Sample ID: 380-75800-8

Date Collected: 12/18/23 10:39

Matrix: Water

Date Received: 12/20/23 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015B GRO LL		1	396699	A9VE	EET CAL 4	12/28/23 14:39

Laboratory References:

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

Accreditation/Certification Summary

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

Job ID: 380-75800-2
SDG: 8015, 625

Laboratory: Eurofins Calscience

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

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

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Method Summary

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

Job ID: 380-75800-2
SDG: 8015, 625

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

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

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

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



Sample Summary

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

Job ID: 380-75800-2
SDG: 8015, 625

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
380-75800-1	MOANALUA WELLS	Water	12/18/23 10:05	12/20/23 10:30
380-75800-2	AIEA GULCH WELLS PUMP 2	Water	12/18/23 11:12	12/20/23 10:30
380-75800-3	AIEA WELLS PUMPS 1&2 (260) P2	Water	12/18/23 11:37	12/20/23 10:30
380-75800-4	HALAWA WELLS UNITS 1&2 P1	Water	12/18/23 10:39	12/20/23 10:30
380-75800-5	TB MOANALUA WELLS	Water	12/18/23 10:05	12/20/23 10:30
380-75800-6	TB AIEA GULCH WELLS PUMP 2	Water	12/18/23 11:12	12/20/23 10:30
380-75800-7	TB AIEA WELLS PUMPS 1&2 (260) P2	Water	12/18/23 11:37	12/20/23 10:30
380-75800-8	TB HALAWA WELLS UNITS 1&2 P1	Water	12/18/23 10:39	12/20/23 10:30

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January 04, 2024

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

Project Name: RED-HILL Project # 38001111 Job # 380-75800-1
 Physis Project ID: 1407003-466

Dear Rachelle,

Enclosed are the analytical results for samples submitted to PHYSIS Environmental Laboratories, Inc. (PHYSIS) on 12/21/2023. A total of 4 samples were received for analysis in accordance with the attached chain of custody (COC). Per the COC, the samples were analyzed for:

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

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

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

Regards,

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

PROJECT SAMPLE LIST

Eurofins Eaton Analytical

PHYSIS Project ID: 1407003-466

RED-HILL Project # 38001111 Job # 380-75800-1

Total Samples: 4

PHYSIS ID	Sample ID	Description	Date	Time	Matrix	Sample Type
113631	MOANALUA WELLS	380-75800-1	12/18/202	10:05	Samplewater	Not Specified
113632	AIEA GULCH WELLS PUMP 2	380-75800-2	12/18/202	11:12	Samplewater	Not Specified
113633	AIEA WELLS PUMPS 1&2 (260) P2	380-75800-3	12/18/202	11:37	Samplewater	Not Specified
113634	HALAWA WELLS UNITS 1&2 P1	380-75800-4	12/18/202	10:39	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 MS₁/MS₂, BS₁/BS₂, LCS₁/LCS₂, LCM₁/LCM₂, CRM₁/CRM₂, surrogate spikes and/or replicate project sample analysis (R₁/R₂) 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

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
Sample ID: 113631-R1	MOANALUA WELLS 380-75800-1		Matrix: Samplewater					Sampled: 18-Dec-23 10:05		Received: 21-Dec-23	
Disalicylideneprapanediamine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-44044	25-Dec-23	01-Jan-24
Sample ID: 113632-R1	AIEA GULCH WELLS PUMP 2 380-7		Matrix: Samplewater					Sampled: 18-Dec-23 11:12		Received: 21-Dec-23	
Disalicylideneprapanediamine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-44044	25-Dec-23	01-Jan-24
Sample ID: 113633-R1	AIEA WELLS PUMPS 1&2 (260) P2 3		Matrix: Samplewater					Sampled: 18-Dec-23 11:37		Received: 21-Dec-23	
Disalicylideneprapanediamine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-44044	25-Dec-23	01-Jan-24
Sample ID: 113634-R1	HALAWA WELLS UNITS 1&2 P1 380-		Matrix: Samplewater					Sampled: 18-Dec-23 10:39		Received: 21-Dec-23	
Disalicylideneprapanediamine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-44044	25-Dec-23	01-Jan-24

Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Sample ID: 113631-R1	MOANALUA WELLS 380-75800-1	Matrix: Samplewater					Sampled: 18-Dec-23 10:05			Received: 21-Dec-23	
(d10-Acenaphthene)	EPA 625.1	% Recovery	71	1			Total		O-44044	25-Dec-23	01-Jan-24
(d10-Phenanthrene)	EPA 625.1	% Recovery	82	1			Total		O-44044	25-Dec-23	01-Jan-24
(d12-Chrysene)	EPA 625.1	% Recovery	91	1			Total		O-44044	25-Dec-23	01-Jan-24
(d12-Perylene)	EPA 625.1	% Recovery	87	1			Total		O-44044	25-Dec-23	01-Jan-24
(d8-Naphthalene)	EPA 625.1	% Recovery	57	1			Total		O-44044	25-Dec-23	01-Jan-24
1-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
1-Methylphenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
2,3,5-Trimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
2,6-Dimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
2-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Acenaphthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Acenaphthylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Benz[a]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Benzo[a]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Benzo[b]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Benzo[e]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Benzo[g,h,i]perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Benzo[k]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Biphenyl	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Chrysene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Dibenz[a,h]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Dibenzo[a,l]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Dibenzothiophene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-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-44044	25-Dec-23	01-Jan-24
Fluorene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Indeno[1,2,3-cd]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Naphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Phenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24



Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed	
Sample ID: 113632-R1	AIEA GULCH WELLS PUMP 2 380-7 Matrix: Samplewater						Sampled:	18-Dec-23	11:12	Received:	21-Dec-23	
(d10-Acenaphthene)	EPA 625.1	% Recovery	69	1			Total		O-44044	25-Dec-23	01-Jan-24	
(d10-Phenanthrene)	EPA 625.1	% Recovery	72	1			Total		O-44044	25-Dec-23	01-Jan-24	
(d12-Chrysene)	EPA 625.1	% Recovery	89	1			Total		O-44044	25-Dec-23	01-Jan-24	
(d12-Perylene)	EPA 625.1	% Recovery	83	1			Total		O-44044	25-Dec-23	01-Jan-24	
(d8-Naphthalene)	EPA 625.1	% Recovery	54	1			Total		O-44044	25-Dec-23	01-Jan-24	
1-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24	
1-Methylphenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24	
2,3,5-Trimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24	
2,6-Dimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24	
2-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24	
Acenaphthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24	
Acenaphthylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24	
Anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24	
Benz[a]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24	
Benzo[a]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24	
Benzo[b]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24	
Benzo[e]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24	
Benzo[g,h,i]perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24	
Benzo[k]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24	
Biphenyl	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24	
Chrysene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24	
Dibenz[a,h]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24	
Dibenzo[a,l]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24	
Dibenzothiophene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-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-44044	25-Dec-23	01-Jan-24
Fluorene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Indeno[1,2,3-cd]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Naphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Phenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24



Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Sample ID: 113633-R1	AIEA WELLS PUMPS 1&2 (260) P2 3 Matrix: Samplewater						Sampled:	18-Dec-23 11:37	Received:	21-Dec-23	
(d10-Acenaphthene)	EPA 625.1	% Recovery	74	1			Total		O-44044	25-Dec-23	01-Jan-24
(d10-Phenanthrene)	EPA 625.1	% Recovery	84	1			Total		O-44044	25-Dec-23	01-Jan-24
(d12-Chrysene)	EPA 625.1	% Recovery	97	1			Total		O-44044	25-Dec-23	01-Jan-24
(d12-Perylene)	EPA 625.1	% Recovery	92	1			Total		O-44044	25-Dec-23	01-Jan-24
(d8-Naphthalene)	EPA 625.1	% Recovery	62	1			Total		O-44044	25-Dec-23	01-Jan-24
1-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
1-Methylphenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
2,3,5-Trimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
2,6-Dimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
2-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Acenaphthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Acenaphthylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Benz[a]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Benzo[a]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Benzo[b]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Benzo[e]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Benzo[g,h,i]perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Benzo[k]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Biphenyl	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Chrysene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Dibenz[a,h]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Dibenzo[a,l]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Dibenzothiophene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-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-44044	25-Dec-23	01-Jan-24
Fluorene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Indeno[1,2,3-cd]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Naphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Phenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24



Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Sample ID: 113634-R1	HALAWA WELLS UNITS 1&2 P1 380- Matrix: Samplewater						Sampled:	18-Dec-23 10:39	Received:	21-Dec-23	
(d10-Acenaphthene)	EPA 625.1	% Recovery	75	1			Total	O-44044	25-Dec-23	01-Jan-24	
(d10-Phenanthrene)	EPA 625.1	% Recovery	84	1			Total	O-44044	25-Dec-23	01-Jan-24	
(d12-Chrysene)	EPA 625.1	% Recovery	94	1			Total	O-44044	25-Dec-23	01-Jan-24	
(d12-Perylene)	EPA 625.1	% Recovery	87	1			Total	O-44044	25-Dec-23	01-Jan-24	
(d8-Naphthalene)	EPA 625.1	% Recovery	61	1			Total	O-44044	25-Dec-23	01-Jan-24	
1-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44044	25-Dec-23	01-Jan-24	
1-Methylphenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44044	25-Dec-23	01-Jan-24	
2,3,5-Trimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44044	25-Dec-23	01-Jan-24	
2,6-Dimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44044	25-Dec-23	01-Jan-24	
2-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44044	25-Dec-23	01-Jan-24	
Acenaphthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44044	25-Dec-23	01-Jan-24	
Acenaphthylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44044	25-Dec-23	01-Jan-24	
Anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44044	25-Dec-23	01-Jan-24	
Benz[a]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44044	25-Dec-23	01-Jan-24	
Benzo[a]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44044	25-Dec-23	01-Jan-24	
Benzo[b]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44044	25-Dec-23	01-Jan-24	
Benzo[e]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44044	25-Dec-23	01-Jan-24	
Benzo[g,h,i]perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44044	25-Dec-23	01-Jan-24	
Benzo[k]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44044	25-Dec-23	01-Jan-24	
Biphenyl	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44044	25-Dec-23	01-Jan-24	
Chrysene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44044	25-Dec-23	01-Jan-24	
Dibenz[a,h]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44044	25-Dec-23	01-Jan-24	
Dibenzo[a,l]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44044	25-Dec-23	01-Jan-24	
Dibenzothiophene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total	O-44044	25-Dec-23	01-Jan-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-44044	25-Dec-23	01-Jan-24
Fluorene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Indeno[1,2,3-cd]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Naphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Phenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24
Pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44044	25-Dec-23	01-Jan-24



QUALITY CONTROL REPORT

TERRA CONSULTING AURA ENVIRONMENTAL LABORATORIES, INC.

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	
Sample ID: 113630-B1		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:		Received:			
		Method: EPA 625.1			Batch ID: O-44044			Prepared: 25-Dec-23		Analyzed: 01-Jan-24			
Disalicylideneprapanediamin	Total	ND	1	0.05	0.1	µg/L							
Sample ID: 113630-BS1		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:		Received:			
		Method: EPA 625.1			Batch ID: O-44044			Prepared: 25-Dec-23		Analyzed: 01-Jan-24			
Disalicylideneprapanediamin	Total	47.5	1	0.05	0.1	µg/L	50	0	95	50 - 150%	PASS		
Sample ID: 113630-BS2		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:		Received:			
		Method: EPA 625.1			Batch ID: O-44044			Prepared: 25-Dec-23		Analyzed: 01-Jan-24			
Disalicylideneprapanediamin	Total	54.5	1	0.05	0.1	µg/L	50	0	109	50 - 150%	PASS	14	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	
Sample ID: 113630-B1		QAQC Procedural Blank			Matrix: BlankMatrix		Sampled:		Received:		
		Method: EPA 625.1				Batch ID: O-44044	Prepared: 25-Dec-23		Analyzed: 01-Jan-24		
(d10-Acenaphthene)	Total	96	1			% Recovery	100	96	27 - 133%	PASS	
(d10-Phenanthrene)	Total	93	1			% Recovery	100	93	43 - 129%	PASS	
(d12-Chrysene)	Total	95	1			% Recovery	100	95	52 - 144%	PASS	
(d12-Perylene)	Total	96	1			% Recovery	100	96	36 - 161%	PASS	
(d8-Naphthalene)	Total	86	1			% Recovery	100	86	25 - 125%	PASS	
1-Methylnaphthalene	Total	ND	1	0.001	0.005	µg/L					
1-Methylphenanthrene	Total	ND	1	0.001	0.005	µg/L					
2,3,5-Trimethylnaphthalene	Total	ND	1	0.001	0.005	µg/L					
2,6-Dimethylnaphthalene	Total	ND	1	0.001	0.005	µg/L					
2-Methylnaphthalene	Total	ND	1	0.001	0.005	µg/L					
Acenaphthene	Total	ND	1	0.001	0.005	µg/L					
Acenaphthylene	Total	ND	1	0.001	0.005	µg/L					
Anthracene	Total	ND	1	0.001	0.005	µg/L					
Benz[a]anthracene	Total	ND	1	0.001	0.005	µg/L					
Benzo[a]pyrene	Total	ND	1	0.001	0.005	µg/L					
Benzo[b]fluoranthene	Total	ND	1	0.001	0.005	µg/L					
Benzo[e]pyrene	Total	ND	1	0.001	0.005	µg/L					
Benzo[g,h,i]perylene	Total	ND	1	0.001	0.005	µg/L					
Benzo[k]fluoranthene	Total	ND	1	0.001	0.005	µg/L					
Biphenyl	Total	ND	1	0.001	0.005	µg/L					
Chrysene	Total	ND	1	0.001	0.005	µg/L					
Dibenz[a,h]anthracene	Total	ND	1	0.001	0.005	µg/L					
Dibenzo[a,l]pyrene	Total	ND	1	0.001	0.005	µg/L					

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 CODE	
							LEVEL	RESULT	%	LIMITS	%	LIMITS
Sample ID: 113630-BS1		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:		Received:		
Method: EPA 625.1		Batch ID: O-44044			Prepared: 25-Dec-23		Analyzed: 01-Jan-24					
(d10-Acenaphthene)	Total	88	1			% Recovery	100	0	88	27 - 133%	PASS	
(d10-Phenanthrene)	Total	90	1			% Recovery	100	0	90	43 - 129%	PASS	
(d12-Chrysene)	Total	97	1			% Recovery	100	0	97	52 - 144%	PASS	
(d12-Perylene)	Total	89	1			% Recovery	100	0	89	36 - 161%	PASS	
(d8-Naphthalene)	Total	74	1			% Recovery	100	0	74	25 - 125%	PASS	
1-Methylnaphthalene	Total	0.391	1	0.001	0.005	µg/L	0.5	0	78	31 - 128%	PASS	
1-Methylphenanthrene	Total	0.455	1	0.001	0.005	µg/L	0.5	0	91	66 - 127%	PASS	
2,3,5-Trimethylnaphthalene	Total	0.397	1	0.001	0.005	µg/L	0.5	0	79	55 - 122%	PASS	
2,6-Dimethylnaphthalene	Total	0.422	1	0.001	0.005	µg/L	0.5	0	84	48 - 120%	PASS	
2-Methylnaphthalene	Total	0.395	1	0.001	0.005	µg/L	0.5	0	79	47 - 130%	PASS	
Acenaphthene	Total	0.423	1	0.001	0.005	µg/L	0.5	0	85	53 - 131%	PASS	
Acenaphthylene	Total	0.411	1	0.001	0.005	µg/L	0.5	0	82	43 - 140%	PASS	
Anthracene	Total	0.423	1	0.001	0.005	µg/L	0.5	0	85	58 - 135%	PASS	
Benz[a]anthracene	Total	0.433	1	0.001	0.005	µg/L	0.5	0	87	55 - 145%	PASS	
Benzo[a]pyrene	Total	0.406	1	0.001	0.005	µg/L	0.5	0	81	51 - 143%	PASS	
Benzo[b]fluoranthene	Total	0.421	1	0.001	0.005	µg/L	0.5	0	84	46 - 165%	PASS	
Benzo[e]pyrene	Total	0.427	1	0.001	0.005	µg/L	0.5	0	85	42 - 152%	PASS	
Benzo[g,h,i]perylene	Total	0.428	1	0.001	0.005	µg/L	0.5	0	86	63 - 133%	PASS	
Benzo[k]fluoranthene	Total	0.396	1	0.001	0.005	µg/L	0.5	0	79	56 - 145%	PASS	
Biphenyl	Total	0.421	1	0.001	0.005	µg/L	0.5	0	84	56 - 119%	PASS	
Chrysene	Total	0.426	1	0.001	0.005	µg/L	0.5	0	85	56 - 141%	PASS	
Dibenz[a,h]anthracene	Total	0.498	1	0.001	0.005	µg/L	0.5	0	100	55 - 150%	PASS	
Dibenzo[a,l]pyrene	Total	0.529	1	0.001	0.005	µg/L	0.5	0	106	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	0.421	1	0.001	0.005	µg/L	0.5	0	84	46 - 126%	PASS		
Fluoranthene	Total	0.465	1	0.001	0.005	µg/L	0.5	0	93	60 - 146%	PASS		
Fluorene	Total	0.404	1	0.001	0.005	µg/L	0.5	0	81	58 - 131%	PASS		
Indeno[1,2,3-cd]pyrene	Total	0.487	1	0.001	0.005	µg/L	0.5	0	97	50 - 151%	PASS		
Naphthalene	Total	0.368	1	0.001	0.005	µg/L	0.5	0	74	41 - 126%	PASS		
Perylene	Total	0.415	1	0.001	0.005	µg/L	0.5	0	83	48 - 141%	PASS		
Phenanthrene	Total	0.428	1	0.001	0.005	µg/L	0.5	0	86	67 - 127%	PASS		
Pyrene	Total	0.48	1	0.001	0.005	µg/L	0.5	0	96	54 - 156%	PASS		



Polynuclear Aromatic Hydrocarbons

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY		PRECISION		QA CODE	
							LEVEL	RESULT	%	LIMITS	%	LIMITS		
Sample ID: 113630-BS2		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:			Received:			
		Method: EPA 625.1			Batch ID: O-44044			Prepared: 25-Dec-23			Analyzed: 01-Jan-24			
(d10-Acenaphthene)	Total	90	1			% Recovery	100	0	90	27 - 133%	PASS	2	30	PASS
(d10-Phenanthrene)	Total	95	1			% Recovery	100	0	95	43 - 129%	PASS	5	30	PASS
(d12-Chrysene)	Total	105	1			% Recovery	100	0	105	52 - 144%	PASS	8	30	PASS
(d12-Perylene)	Total	97	1			% Recovery	100	0	97	36 - 161%	PASS	9	30	PASS
(d8-Naphthalene)	Total	79	1			% Recovery	100	0	79	25 - 125%	PASS	7	30	PASS
1-Methylnaphthalene	Total	0.408	1	0.001	0.005	µg/L	0.5	0	82	31 - 128%	PASS	5	30	PASS
1-Methylphenanthrene	Total	0.472	1	0.001	0.005	µg/L	0.5	0	94	66 - 127%	PASS	3	30	PASS
2,3,5-Trimethylnaphthalene	Total	0.41	1	0.001	0.005	µg/L	0.5	0	82	55 - 122%	PASS	4	30	PASS
2,6-Dimethylnaphthalene	Total	0.436	1	0.001	0.005	µg/L	0.5	0	87	48 - 120%	PASS	4	30	PASS
2-Methylnaphthalene	Total	0.411	1	0.001	0.005	µg/L	0.5	0	82	47 - 130%	PASS	4	30	PASS
Acenaphthene	Total	0.424	1	0.001	0.005	µg/L	0.5	0	85	53 - 131%	PASS	0	30	PASS
Acenaphthylene	Total	0.437	1	0.001	0.005	µg/L	0.5	0	87	43 - 140%	PASS	6	30	PASS
Anthracene	Total	0.44	1	0.001	0.005	µg/L	0.5	0	88	58 - 135%	PASS	3	30	PASS
Benz[a]anthracene	Total	0.46	1	0.001	0.005	µg/L	0.5	0	92	55 - 145%	PASS	6	30	PASS
Benzo[a]pyrene	Total	0.449	1	0.001	0.005	µg/L	0.5	0	90	51 - 143%	PASS	11	30	PASS
Benzo[b]fluoranthene	Total	0.454	1	0.001	0.005	µg/L	0.5	0	91	46 - 165%	PASS	8	30	PASS
Benzo[e]pyrene	Total	0.465	1	0.001	0.005	µg/L	0.5	0	93	42 - 152%	PASS	9	30	PASS
Benzo[g,h,i]perylene	Total	0.449	1	0.001	0.005	µg/L	0.5	0	90	63 - 133%	PASS	5	30	PASS
Benzo[k]fluoranthene	Total	0.42	1	0.001	0.005	µg/L	0.5	0	84	56 - 145%	PASS	6	30	PASS
Biphenyl	Total	0.437	1	0.001	0.005	µg/L	0.5	0	87	56 - 119%	PASS	4	30	PASS
Chrysene	Total	0.443	1	0.001	0.005	µg/L	0.5	0	89	56 - 141%	PASS	5	30	PASS
Dibenz[a,h]anthracene	Total	0.522	1	0.001	0.005	µg/L	0.5	0	104	55 - 150%	PASS	4	30	PASS
Dibenzo[a,l]pyrene	Total	0.542	1	0.001	0.005	µg/L	0.5	0	108	50 - 150%	PASS	2	30	PASS

Polynuclear Aromatic Hydrocarbons

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY		PRECISION		QA CODE _c	
							LEVEL	RESULT	%	LIMITS	%	LIMITS		
Dibenzothiophene	Total	0.439	1	0.001	0.005	µg/L	0.5	0	88	46 - 126%	PASS	5	30	PASS
Fluoranthene	Total	0.488	1	0.001	0.005	µg/L	0.5	0	98	60 - 146%	PASS	5	30	PASS
Fluorene	Total	0.426	1	0.001	0.005	µg/L	0.5	0	85	58 - 131%	PASS	5	30	PASS
Indeno[1,2,3-cd]pyrene	Total	0.52	1	0.001	0.005	µg/L	0.5	0	104	50 - 151%	PASS	7	30	PASS
Naphthalene	Total	0.389	1	0.001	0.005	µg/L	0.5	0	78	41 - 126%	PASS	5	30	PASS
Perylene	Total	0.435	1	0.001	0.005	µg/L	0.5	0	87	48 - 141%	PASS	5	30	PASS
Phenanthrene	Total	0.442	1	0.001	0.005	µg/L	0.5	0	88	67 - 127%	PASS	2	30	PASS
Pyrene	Total	0.503	1	0.001	0.005	µg/L	0.5	0	101	54 - 156%	PASS	5	30	PASS

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PHYSIS
TENTATIVELY
IDENTIFIED COMPOUNDS
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

Sample ID: 113633

Retention Time	Area (% of total)	Concentration (ng/L)	Library/ID	Cas Number	Match Quality (%)
35.0705	6.6059	1111	Anthracene-D10-	1517-22-2	94
10.4727	3.5670	600	1,5-Heptadien-4-one, 3,3,6-trimethyl-	546-49-6	86
27.4153	1.0755	181	2,2,4-Trimethyl-1,3-pentanediol diisobutyrate	6846-50-0	96
43.2319	0.8414	142	Acenaphthylene	208-96-8	82
41.5142	0.6770	114	Dibutyl phthalate	84-74-2	98
55.1299	0.6462	109	Phthalic acid, benzyl isobutyl ester	1000309-04-3	91
10.2394	0.6028	101	Hydroperoxide, 1-methylpentyl	24254-55-5	85

Concentration estimated using the response for Anthracene-d10

Sample ID: Lab Blank B1_44044

Retention Time	Area (% of total)	Concentration (ng/L)	Library/ID	Cas Number	Match Quality (%)
35.0748	6.0407	1111	Anthracene-D10-	1517-22-2	95
10.4742	4.3979	809	1,5-Heptadien-4-one, 3,3,6-trimethyl-	546-49-6	88
10.2394	0.7406	136	Hydroperoxide, 1-methylpentyl	24254-55-5	87

Concentration estimated using the response for Anthracene-d10

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Sample ID: 113634

Retention Time	Area (% of total)	Concentration (ng/L)	Library/ID	Cas Number	Match Quality (%)
35.0733	5.6851	1111	Anthracene-D10-	1719-06-8	97
10.4732	3.5545	695	1,5-Heptadien-4-one, 3,3,6-trimethyl-	546-49-6	87
55.1322	0.6124	120	Benzyl butyl phthalate	85-68-7	92
41.5173	0.6002	117	Dibutyl phthalate	84-74-2	98
10.2392	0.5742	112	Hydroperoxide, 1-methylpentyl	24254-55-5	85

Concentration estimated using the response for Anthracene-d10

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Sample ID: 113631

Retention Time	Area (% of total)	Concentration (ng/L)	Library/ID	Cas Number	Match Quality (%)
35.0682	5.4326	1111	Anthracene-D10-	1719-06-8	90
10.4733	3.6331	743	1,5-Heptadien-4-one, 3,3,6-trimethyl-	546-49-6	87
10.2396	0.6018	123	Hydroperoxide, 1-methylpentyl	24254-55-5	85

Concentration estimated using the response for Anthracene-d10

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Sample ID: 113632

Retention Time	Area (% of total)	Concentration (ng/L)	Library/ID	Cas Number	Match Quality (%)
35.0741	6.2829	1111	Anthracene-D10-	1517-22-2	94
10.4727	3.7304	660	1,5-Heptadien-4-one, 3,3,6-trimethyl-	546-49-6	87
10.2386	0.7159	127	Hydroperoxide, 1-methylpentyl	24254-55-5	85

Concentration estimated using the response for Anthracene-d10

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PERFORMANCE CHAIN OF CUSTODY

TERRA ENVIRONMENTAL LABORATORIES, INC. AURA

Innovative Solutions for Nature

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Chain of Custody Record



Environment Testing

Client Information (Sub Contract Lab) Sampler: Lab P.M.: Arada, Rachelle

Shipping/Receiving Phone: E-Mail: Rachelle.Arada@et.eurofins.com

Company: Physis Environmental Laboratories State of Origin: Hawaii

Address: 1904 Wright Circle, Due Date Requested: 1/4/2024 State - Hawaii Job #: 380-75800-1

City: Anaheim TAT Requested (days): Accreditations Required (See note):

State/Zip: CA, 92806 PO #: **Analysis Requested**

Phone: W/O #: **Field Filtered Sample (Yes or No)**

Email: Project #: **Perform MS/MSD (Yes or No)**

Project Name: RED-HILL 38001111 SUB (625 PAH Physis LL (EAL) + TICs) / 625 PAH Physis LL (EAL) + TICs

Site: Honolulu BWS Sites SSOEW#: **Total Number of containers**

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (G=Comp, G=grab)	Matrix (Wettable, Solid, Organic, Inorganic, AsAb)	Preservation Code:	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Total Number of containers	Special Instructions/Note:
MOANALUA WELLS (380-75800-1)	12/18/23	10:05	Water	Water		X	X	2	See Attached Instructions
AIEA GULCH WELLS PUMP 2 (380-75800-2)	12/18/23	11:12	Water	Water		X	X	2	See Attached Instructions
AIEA WELLS PUMPS 1&2 (260) P2 (380-75800-3)	12/18/23	11:37	Water	Water		X	X	2	See Attached Instructions
HALAWA WELLS UNITS 1&2 P1 (380-75800-4)	12/18/23	10:39	Water	Water		X	X	2	See Attached Instructions

Possible Hazard Identification

Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2

Empty Kit Relinquished by: Date: Method of Shipment:

Relinquished by: *[Signature]* Date/Time: 12/21/23 11:15 Company: *EEAT*

Relinquished by: *MARQUEL* Date/Time: 12/21/23 11:51 Company: *DECS*

Relinquished by: Date/Time: Company:

Custody Seals Intact: Custody Seal No.:

Δ Yes Δ No

Special Instructions/Note:

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

Return To Client Disposal By Lab Archive For _____ Months

Special Instructions/QC Requirements:

Received by: *MARQUEL* Date/Time: 12/21-23 11:16 Company: *DECS*

Received by: *MOUNGA NAWY* Date/Time: 12/21/23 11:51 Company: *PHYSIS*

Cooler Temperature(s) °C and Other Remarks:



Project Iteration ID: 1407003-466
 Client Name: Eurofins Eaton Analytical
 Project Name: RED-HILL Project # 38001111
 Job # 380-75800-1
 COC Page Number: 2 of 2
 Bottle Label Color: NA

Sample Receipt Summary

Receiving Info

- Initials Received By: MN
- Date Received: 12/21/23
- Time Received: 11:51
- Client Name: Eurofins
- Courier Information: (Please circle)
 - Client
 - UPS
 - Area Fast
 - DRS
 - FedEx
 - GSO/GLS
 - Ontrac
 - PAMS
 - PHYSIS Driver:
 - Start Time: _____
 - End Time: _____
 - Total Mileage: _____
 - Number of Pickups: _____
- Container Information: (Please put the # of containers or circle none)
 - Cooler
 - Styrofoam Cooler
 - Boxes
 - None
 - Carboy(s)
 - Carboy Trash Can(s)
 - Carboy Cap(s)
 - Other _____
- What type of ice was used: (Please circle any that apply)
 - Wet Ice
 - Blue Ice
 - Dry Ice
 - Water
 - None
- Randomly Selected Samples Temperature (°C): 6-9 Used I/R Thermometer # 1-2

Inspection Info

- Initials Inspected By: RGH

Sample Integrity Upon Receipt:

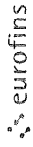
- COC(s) included and completely filled out..... Yes / No
- All sample containers arrived intact..... Yes / No
- All samples listed on COC(s) are present..... Yes / No
- Information on containers consistent with information on COC(s)..... Yes / No
- Correct containers and volume for all analyses indicated.....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

Notes:

See temp

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

Chain of Custody Record

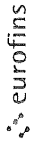


Client Information Client Contact: Dr Ron Fenstermacher Phone: 808-748-5840 City & County of Honolulu		Lab PM: Avada Rachelle E-Mail: Rachelle.Arada@et.euronisus.com		Camer Tracking No(s): 380-27941-2757 2 State of Origin:		COC No: 380-27941-2757 2 Page: Page 1 of 2 Job #:	
Address: 630 South Beretania Street, Chemistry Lab City: Honolulu State: HI, 96843 Phone: 808-748-5091 (tel) Email: rfenstemacher@hbws.org		Due Date Requested: TAT Requested (days): Compliance Project: Δ No PO #: C20525101 exp 05312023 WO #:		PWSID:		Analysis Requested	
Project Name: RED-HILL/HBWS sites Event Desc. RUSH Weekly Red Hill Site:		Project #: 38001111 SSONW#:		Perform MS/MSD (Yes or No)		Total Number of Containers	
Sample Identification		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)	
MOANALUA WELLS		18-Dec-2023		1005		G Water	
AIEA GULCH WELLS PUMP2		18-Dec-2023		1112		G Water	
AIEA WELLS PUMPS 1&2 (260) P2		18-Dec-2023		1137		G Water	
HALAWA WELLS UNITS 1&2 P1		18-Dec-2023		1039		G Water	
TB MOANALUA WELLS		18-Dec-2023		1005		Water	
TB AIEA GULCH WELLS PUMP2		18-Dec-2023		1112		Water	
TB AIEA WELLS PUMPS 1&2 (260)		18-Dec-2023		1137		Water	
TB HALAWA WELLS UNITS 1&2		18-Dec-2023		1039		Water	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		Date:		Date/Time:		Date/Time:	
Deliverable Requested: I, II, III, IV Other (specify)		Date: 19 Dec 2023 1400		Date/Time:		Date/Time:	
Empty Kit Relinquished by: Bailey		Date:		Date/Time:		Date/Time:	
Relinquished by:		Date:		Date/Time:		Date/Time:	
Relinquished by:		Date:		Date/Time:		Date/Time:	
Custody Seals Intact: Δ Yes Δ No		Custody Seal No:		Cooler Temperature(s) °C and Other Remarks:		Company:	



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

Chain of Custody Record



Client Information Client Contact: Dr. Ron Fenstermacher Company: City & County of Honolulu Address: 630 South Beretania Street, Chemistry Lab City: Honolulu State: HI, 96843 Phone: 808-748-5091 (tel) Email: rfenstermacher@hbws.org Project Name: RED-HILL/HBWS sites Event Desc. RUSH Weekly Red Hill Site:		Sampler: Bayley Phone: 808-748-5840 Lab PM: Avada Rachelle E-Mail: Rachelle.Arada@et.euronisus.com Camer Tracking No(s): State of Origin:		COC No: 380-27941-2757 2 Page: Page 2 of 2 Job #:	
Due Date Requested: TAT Requested (days): Compliance Project: Δ No PO #: C20525101 exp 05312023 WO #:		Analysis Requested Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No SUBCONTRACT - 825 PAH Physis LL (EAL) + TICs R R RA SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL) R R RA SUBCONTRACT - (MOD) 525plus PLUS TICs 525 2_PREC - (MOD) 525plus PLUS TICs RA Y N SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL) 527 1_DW_PREC - 527 1 Full List Y N 533 - All Analytes			
PWSID		Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify) Other:			
Sample Identification MOANALUA WELLS AIEA GULCH WELLS PUMP2 AIEA WELLS PUMPS 1&2 (260) PZ HALAWA WELLS UNITS 1&2 P1 FB MOANALUA WELLS FB AIEA GULCH WELLS PUMP2 FB AIEA WELLS PUMPS 1&2 (260) FB HALAWA WELLS UNITS 1&2		Sample Date 18-Dec-2023 18-Dec-2023 18-Dec-2023 18-Dec-2023 18-Dec-2023 18-Dec-2023 18-Dec-2023 18-Dec-2023		Sample Time 1005 1112 1137 1039 1005 1112 1137 1039	
Matrix (W=water, S=solid, O=water/solid) Preservation Code (BT=Tissue, A=Air)		Total Number of Containers chlorinated chlorinated			
Special Instructions/Note		Special Instructions/Note			
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested I, II, III, IV Other (specify)					
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months					
Special Instructions/QC Requirements					
Empty Kit Relinquished by: Bayley Relinquished by:		Date: 19 Dec 2023 1400 Date/Time:		Method of Shipment: 7745 4467 177 / 1728 / 1731 / 1746 Date/Time: 12/21/23 10:30 Date/Time:	
Relinquished by:		Date/Time:		Company:	
Relinquished by:		Date/Time:		Company:	
Relinquished by:		Date/Time:		Company:	
Custody Seals Intact: Δ Yes Δ No Custody Seal No		Cooler Temperature(s) °C and Other Remarks: 6WA/2-6 → 2-24 36 → 3.4 3.6 3.6			



Bottle Order Information

Bottle Order: RUSH RED-HILL WEEKLY
 Bottle Order #: 2757
 Request From Client: 3/2/2023
 Date Order Posted: 7/20/2022 11:12:54AM
 Order Status: Ready To Process
 Prepared By: Davis Haley
Deliver By Date: 12/13/2023 11:59:00PM
 Lab Project Number: 38001111
 PWSID:

Order Completion Information

Creator: Michelle Do
 Filled by:
 Sent Date:
 Sent Via:
 Tracking #:

Sets	Bottles/Set	Qty	Bottle Type Description	Preservative	Method	Matrix	Sample Type	Comments	Lot #
4	2	8	Amber Glass 1 liter - Sodium Thiosulfate	Sodium Thiosulfate	SUBCONTRACT - 625 PAH Physis LL (EAL) + TICs	Water	Normal	625 PAH	
4	4	16	Voa Vial 40ml - Sodium Thio w/HCl-dropper	Sodium Thiosulfate	SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)	Water	Normal		
4	2	8	Amber Glass 1 L - NaThiosulfate 8mL HCL	Sodium Thiosulfate/Hydrochloric Acid	SUBCONTRACT - 8015 Diesel LL (EAL) and Motor Oil	Water	Normal		
4	2	8	Amber Glass 1 Liter- Sodium Sulfite/HCl	Sodium Sulfite w/HCl	525.2_PREC - (MOD) 525plus Plus TICs	Water	Normal		
4	2	8	VOA Vial 40mL - NaThiosulfate/HCL	Sodium Thiosulfate/Hydrochloric Acid	SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)	Water	Trip Blank		
5	3	15	Plastic 250ml - Trizma	Trizma	537.1_DW_PREC - 537.1 Full List	Water	Normal		
5	3	15	Plastic 250ml - Ammonium Acetate	Ammonium Acetate	533 - All Analytes	Water	Normal		
5	1	5	Plastic 250ml - Reagent Water	None		Water	Field Blank		
5	1	5	Plastic 250ml - Ammonium Acetate	Ammonium Acetate		Water	Field Blank		
5	1	5	Plastic 250ml - Reagent Water	None		Water	Field Blank		
5	1	5	Plastic 250ml - Trizma	Trizma		Water	Field Blank		

Please notify your PM immediately if an error is found in shipment. When returning samples, please return all provided QC samples.



Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-75800-2

SDG Number: 8015, 625

Login Number: 75800

List Number: 1

Creator: Do, Michelle

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	Containers recd broken. Sufficient sample in remaining containers for analysis.
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: 380-75800-2

SDG Number: 8015, 625

Login Number: 75800

List Number: 2

Creator: Khana, Piyush

List Source: Eurofins Calscience

List Creation: 12/21/23 03:19 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
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	1.2
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	

