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ANALYTICAL REPORT

PREPARED FOR

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

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JOB DESCRIPTION

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

JOB NUMBER

380-93697-1

Eurofins Eaton Analytical Pomona
941 Corporate Center Drive
Pomona CA 91768-2642

See page two for job notes and contact information.

Eurofins Eaton Analytical Pomona

Job Notes

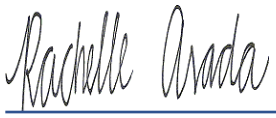
This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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

Compliance Statement

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

Authorization



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Authorized for release by
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Table of Contents

Definitions/Glossary

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

Job ID: 380-93697-1
SDG: 625, 8015

Glossary

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

Job Narrative
380-93697-1

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

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

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

Receipt
The samples were received on 5/1/2024 9:31 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 2 coolers at receipt time were 0.4°C and 3.2°C.

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

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

Diesel Range Organics
Method 8015B_DRO_LL_CS: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-437817. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch. 8015B_DRO.

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

Detection Summary

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

Job ID: 380-93697-1
SDG: 625, 8015

Client Sample ID: MOANALUA WELLS — Lab Sample ID: 380-93697-1
PWSID Number: HI0000331

No Detections.

Client Sample ID: AIEA GULCH WELLS PUMP 2 — Lab Sample ID: 380-93697-2
PWSID Number: HI0000331

No Detections.

Client Sample ID: AIEA WELLS PUMPS 1&2 (260) P2 — Lab Sample ID: 380-93697-3
PWSID Number: HI0000331

No Detections.

Client Sample ID: HALAWA WELLS UNITS 1 & 2 P1 — Lab Sample ID: 380-93697-4
PWSID Number: HI0000331

No Detections.

Client Sample ID: TB MOANALUA WELLS — Lab Sample ID: 380-93697-5

No Detections.

Client Sample ID: TB AIEA GULCH WELLS PUMP 2 — Lab Sample ID: 380-93697-6

No Detections.

Client Sample ID: TB AIEA WELLS PUMPS 1&2 (260) P2 — Lab Sample ID: 380-93697-7

No Detections.

Client Sample ID: TB HALAWA WELLS UNITS 1 & 2 P1 — Lab Sample ID: 380-93697-8

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: MOANALUA WELLS

Date Collected: 04/29/24 10:15
Date Received: 05/01/24 09:31

Lab Sample ID: 380-93697-1

Matrix: Drinking Water
PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	<10		10		ug/L			05/09/24 15:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*112*		*38 - 134*		*05/09/24 15:24*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (C10-C24)	<27		27		ug/L		05/06/24 16:54	05/13/24 01:19	1
Motor Oil Range Organics [C24-C36]	<27		27		ug/L		05/06/24 16:54	05/13/24 01:19	1
C8-C18	<27		27		ug/L		05/06/24 16:54	05/13/24 01:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*98*		*60 - 130*	*05/06/24 16:54*	*05/13/24 01:19*	*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		05/02/24 00:00	06/02/24 19:05	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 19:05	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 19:05	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 19:05	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 19:05	1
Acenaphthene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 19:05	1
Acenaphthylene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 19:05	1
Anthracene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 19:05	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 19:05	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 19:05	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 19:05	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 19:05	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 19:05	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 19:05	1
Biphenyl	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 19:05	1
Chrysene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 19:05	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 19:05	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 19:05	1
Dibenzothiophene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 19:05	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		05/02/24 00:00	06/02/24 19:05	1
Fluoranthene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 19:05	1
Fluorene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 19:05	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 19:05	1
Naphthalene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 19:05	1
Perylene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 19:05	1
Phenanthrene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 19:05	1
Pyrene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 19:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
(d10-Acenaphthene)	*125*		*27 - 133*	*05/02/24 00:00*	*06/02/24 19:05*	*1*
(d10-Phenanthrene)	*125*		*43 - 129*	*05/02/24 00:00*	*06/02/24 19:05*	*1*
(d12-Chrysene)	*138*		*52 - 144*	*05/02/24 00:00*	*06/02/24 19:05*	*1*
(d12-Perylene)	*153*		*36 - 161*	*05/02/24 00:00*	*06/02/24 19:05*	*1*
(d8-Naphthalene)	*120*		*25 - 125*	*05/02/24 00:00*	*06/02/24 19:05*	*1*

Client Sample ID: AIEA GULCH WELLS PUMP 2

Date Collected: 04/29/24 11:03
Date Received: 05/01/24 09:31

Lab Sample ID: 380-93697-2

Matrix: Drinking Water
PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	<10		10		ug/L			05/09/24 15:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*111*		*38 - 134*		*05/09/24 15:50*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (C10-C24)	<27		27		ug/L		05/06/24 16:54	05/13/24 01:40	1
Motor Oil Range Organics [C24-C36]	<27		27		ug/L		05/06/24 16:54	05/13/24 01:40	1
C8-C18	<27		27		ug/L		05/06/24 16:54	05/13/24 01:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*99*		*60 - 130*	*05/06/24 16:54*	*05/13/24 01:40*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 20:54	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 20:54	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 20:54	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 20:54	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 20:54	1
Acenaphthene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 20:54	1
Acenaphthylene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 20:54	1
Anthracene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 20:54	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 20:54	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 20:54	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 20:54	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 20:54	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 20:54	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 20:54	1
Biphenyl	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 20:54	1
Chrysene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 20:54	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 20:54	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 20:54	1
Dibenzothiophene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 20:54	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		05/02/24 00:00	06/02/24 20:54	1
Fluoranthene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 20:54	1
Fluorene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 20:54	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 20:54	1
Naphthalene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 20:54	1
Perylene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 20:54	1
Phenanthrene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 20:54	1
Pyrene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 20:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
(d10-Acenaphthene)	*123*		*27 - 133*	*05/02/24 00:00*	*06/02/24 20:54*	*1*
(d10-Phenanthrene)	*119*		*43 - 129*	*05/02/24 00:00*	*06/02/24 20:54*	*1*
(d12-Chrysene)	*117*		*52 - 144*	*05/02/24 00:00*	*06/02/24 20:54*	*1*
(d12-Perylene)	*120*		*36 - 161*	*05/02/24 00:00*	*06/02/24 20:54*	*1*
(d8-Naphthalene)	*111*		*25 - 125*	*05/02/24 00:00*	*06/02/24 20:54*	*1*

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

Date Collected: 04/29/24 11:25
Date Received: 05/01/24 09:31

Lab Sample ID: 380-93697-3

Matrix: Drinking Water
PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	<10		10		ug/L			05/09/24 16:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*110*		*38 - 134*		*05/09/24 16:16*	*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		05/06/24 16:54	05/13/24 02:01	1
Motor Oil Range Organics [C24-C36]	<25		25		ug/L		05/06/24 16:54	05/13/24 02:01	1
C8-C18	<25		25		ug/L		05/06/24 16:54	05/13/24 02:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*92*		*60 - 130*	*05/06/24 16:54*	*05/13/24 02:01*	*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		05/02/24 00:00	06/02/24 22:43	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 22:43	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 22:43	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 22:43	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 22:43	1
Acenaphthene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 22:43	1
Acenaphthylene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 22:43	1
Anthracene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 22:43	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 22:43	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 22:43	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 22:43	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 22:43	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 22:43	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 22:43	1
Biphenyl	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 22:43	1
Chrysene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 22:43	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 22:43	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 22:43	1
Dibenzothiophene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 22:43	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		05/02/24 00:00	06/02/24 22:43	1
Fluoranthene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 22:43	1
Fluorene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 22:43	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 22:43	1
Naphthalene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 22:43	1
Perylene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 22:43	1
Phenanthrene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 22:43	1
Pyrene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 22:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
(d10-Acenaphthene)	*129*		*27 - 133*	*05/02/24 00:00*	*06/02/24 22:43*	*1*
(d10-Phenanthrene)	*118*		*43 - 129*	*05/02/24 00:00*	*06/02/24 22:43*	*1*
(d12-Chrysene)	*112*		*52 - 144*	*05/02/24 00:00*	*06/02/24 22:43*	*1*
(d12-Perylene)	*117*		*36 - 161*	*05/02/24 00:00*	*06/02/24 22:43*	*1*
(d8-Naphthalene)	*116*		*25 - 125*	*05/02/24 00:00*	*06/02/24 22:43*	*1*

Client Sample ID: HALAWA WELLS UNITS 1 & 2 P1

Date Collected: 04/29/24 10:37
Date Received: 05/01/24 09:31

Lab Sample ID: 380-93697-4

Matrix: Drinking Water
PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
GRO (C6-C10)	<10		10		ug/L			05/09/24 16:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*107*		*38 - 134*		*05/09/24 16:42*	*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		05/06/24 16:54	05/13/24 02:22	1
Motor Oil Range Organics [C24-C36]	<25		25		ug/L		05/06/24 16:54	05/13/24 02:22	1
C8-C18	<25		25		ug/L		05/06/24 16:54	05/13/24 02:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*94*		*60 - 130*	*05/06/24 16:54*	*05/13/24 02:22*	*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		05/02/24 00:00	06/03/24 00:31	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/03/24 00:31	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/03/24 00:31	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/03/24 00:31	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/03/24 00:31	1
Acenaphthene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/03/24 00:31	1
Acenaphthylene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/03/24 00:31	1
Anthracene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/03/24 00:31	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/03/24 00:31	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/03/24 00:31	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/03/24 00:31	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/03/24 00:31	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/03/24 00:31	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/03/24 00:31	1
Biphenyl	ND		0.005	0.001	µg/L		05/02/24 00:00	06/03/24 00:31	1
Chrysene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/03/24 00:31	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/03/24 00:31	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/03/24 00:31	1
Dibenzothiophene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/03/24 00:31	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		05/02/24 00:00	06/03/24 00:31	1
Fluoranthene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/03/24 00:31	1
Fluorene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/03/24 00:31	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/03/24 00:31	1
Naphthalene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/03/24 00:31	1
Perylene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/03/24 00:31	1
Phenanthrene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/03/24 00:31	1
Pyrene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/03/24 00:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
(d10-Acenaphthene)	*122*		*27 - 133*	*05/02/24 00:00*	*06/03/24 00:31*	*1*
(d10-Phenanthrene)	*127*		*43 - 129*	*05/02/24 00:00*	*06/03/24 00:31*	*1*
(d12-Chrysene)	*115*		*52 - 144*	*05/02/24 00:00*	*06/03/24 00:31*	*1*
(d12-Perylene)	*114*		*36 - 161*	*05/02/24 00:00*	*06/03/24 00:31*	*1*
(d8-Naphthalene)	*117*		*25 - 125*	*05/02/24 00:00*	*06/03/24 00:31*	*1*

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

Job ID: 380-93697-1
SDG: 625, 8015

Client Sample ID: TB MOANALUA WELLS

Lab Sample ID: 380-93697-5
Matrix: Water
Date Collected: 04/29/24 10:15
Date Received: 05/01/24 09:31

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			05/09/24 13:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*110*		*38 - 134*		*05/09/24 13:40*	*1*

Client Sample ID: TB AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-93697-6
Matrix: Water
Date Collected: 04/29/24 11:03
Date Received: 05/01/24 09:31

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			05/09/24 14:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*114*		*38 - 134*		*05/09/24 14:06*	*1*

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

Lab Sample ID: 380-93697-7
Matrix: Water
Date Collected: 04/29/24 11:25
Date Received: 05/01/24 09:31

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			05/09/24 14:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*109*		*38 - 134*		*05/09/24 14:32*	*1*

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

Lab Sample ID: 380-93697-8
Matrix: Water
Date Collected: 04/29/24 10:37
Date Received: 05/01/24 09:31

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			05/09/24 14:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*114*		*38 - 134*		*05/09/24 14:58*	*1*

Surrogate Summary

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

Job ID: 380-93697-1
SDG: 625, 8015

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

Matrix: Drinking Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	BFB1 (38-134)
380-93697-1	MOANALUA WELLS	112
380-93697-2	AIEA GULCH WELLS PUMP 2	111
380-93697-3	AIEA WELLS PUMPS 1&2 (260) P2	110
380-93697-4	HALAWA WELLS UNITS 1 & 2 P1	107

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

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

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	BFB1 (38-134)
380-93697-5	TB MOANALUA WELLS	110
380-93697-6	TB AIEA GULCH WELLS PUMP 2	114
380-93697-7	TB AIEA WELLS PUMPS 1&2 (260) P2	109
380-93697-8	TB HALAWA WELLS UNITS 1 & 2 P1	114
570-182373-B-1 MS	Matrix Spike	114
570-182373-C-1 MSD	Matrix Spike Duplicate	113
LCS 570-438875/4	Lab Control Sample	123
LCSD 570-438875/5	Lab Control Sample Dup	119
MB 570-438875/6	Method Blank	112
MRL 570-438875/3	Lab Control Sample	112

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

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

Matrix: Drinking Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	OTCSN1 (60-130)
380-93697-1	MOANALUA WELLS	98
380-93697-2	AIEA GULCH WELLS PUMP 2	99
380-93697-3	AIEA WELLS PUMPS 1&2 (260) P2	92
380-93697-4	HALAWA WELLS UNITS 1 & 2 P1	94

Surrogate Legend

OTCSN = n-Octacosane (Surr)

Surrogate Summary

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

Job ID: 380-93697-1
SDG: 625, 8015

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

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		OTCSN1
Lab Sample ID	Client Sample ID	(60-130)
LCS 570-437817/2-A	Lab Control Sample	108
LCSD 570-437817/3-A	Lab Control Sample Dup	97
MB 570-437817/1-A	Method Blank	124
MRL 570-437817/4-A	Lab Control Sample	109

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)				
		Acenapht	Phenanth	CRY	NPT	PRY
Lab Sample ID	Client Sample ID	(27-133)	(43-129)	(52-144)	(25-125)	(36-161)
117673-B1	Method Blank	127	122	128	118	111
117673-BS1	Lab Control Sample	120	119	117	108	113
117673-BS2	Lab Control Sample Dup	123	124	121	112	115

Surrogate Legend

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

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

Matrix: Drinking Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)				
		Acenapht	Phenanth	CRY	NPT	PRY
Lab Sample ID	Client Sample ID	(27-133)	(43-129)	(52-144)	(25-125)	(36-161)
380-93697-1	MOANALUA WELLS	125	125	138	120	153
380-93697-2	AIEA GULCH WELLS PUMP 2	123	119	117	111	120
380-93697-3	AIEA WELLS PUMPS 1&2 (260) P2	129	118	112	116	117
380-93697-4	HALAWA WELLS UNITS 1 & 2 P1	122	127	115	117	114

Surrogate Legend

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

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

Lab Sample ID: MB 570-438875/6
Matrix: Water
Analysis Batch: 438875

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			05/09/24 12:47	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*112*		*38 - 134*		*05/09/24 12:47*	*1*

Lab Sample ID: LCS 570-438875/4
Matrix: Water
Analysis Batch: 438875

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (C4-C13)			400	421		ug/L		105	78 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*123*		*38 - 134*

Lab Sample ID: LCSD 570-438875/5
Matrix: Water
Analysis Batch: 438875

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (C4-C13)			400	423		ug/L		106	78 - 120	0	10

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*119*		*38 - 134*

Lab Sample ID: MRL 570-438875/3
Matrix: Water
Analysis Batch: 438875

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

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (C4-C13)			10.0	13.0		ug/L		130	50 - 150		

Surrogate	*MRL %Recovery*	*MRL Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*112*		*38 - 134*

Lab Sample ID: 570-182373-B-1 MS
Matrix: Water
Analysis Batch: 438875

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Gasoline Range Organics (C4-C13)	11		400	377		ug/L		92	68 - 122		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*114*		*38 - 134*

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

Lab Sample ID: 570-182373-C-1 MSD
Matrix: Water
Analysis Batch: 438875

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (C4-C13)	11		400	379		ug/L		92	68 - 122	0	18

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*113*		*38 - 134*

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

Lab Sample ID: MB 570-437817/1-A
Matrix: Water
Analysis Batch: 443235

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 437817

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (C10-C24)	<25		25		ug/L		05/06/24 16:54	05/22/24 13:58	1
Motor Oil Range Organics [C24-C36]	<25		25		ug/L		05/06/24 16:54	05/22/24 13:58	1
C8-C18	<25		25		ug/L		05/06/24 16:54	05/22/24 13:58	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane (Surr)	*124*		*60 - 130*	*05/06/24 16:54*	*05/22/24 13:58*	*1*

Lab Sample ID: LCS 570-437817/2-A
Matrix: Water
Analysis Batch: 439864

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 437817

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
C10-C28			1600	1760		ug/L		110	56 - 127		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
n-Octacosane (Surr)	*108*		*60 - 130*

Lab Sample ID: LCSD 570-437817/3-A
Matrix: Water
Analysis Batch: 439864

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 437817

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
C10-C28			1600	1740		ug/L		109	56 - 127	1	23

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
n-Octacosane (Surr)	*97*		*60 - 130*

Lab Sample ID: MRL 570-437817/4-A
Matrix: Water
Analysis Batch: 439864

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 437817

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
C10-C28			0.0200	<0.020		mg/L		53	50 - 150		

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

Lab Sample ID: MRL 570-437817/4-A
Matrix: Water
Analysis Batch: 439864

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 437817

Surrogate	MRL %Recovery	MRL Qualifier	Limits
n-Octacosane (Surr)	*109*		*60 - 130*

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

Lab Sample ID: 117673-B1
Matrix: BlankMatrix
Analysis Batch: O-45052

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: O-45052_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 13:38	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 13:38	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 13:38	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 13:38	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 13:38	1
Acenaphthene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 13:38	1
Acenaphthylene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 13:38	1
Anthracene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 13:38	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 13:38	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 13:38	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 13:38	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 13:38	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 13:38	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 13:38	1
Biphenyl	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 13:38	1
Chrysene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 13:38	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 13:38	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 13:38	1
Dibenzothiophene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 13:38	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		05/02/24 00:00	06/02/24 13:38	1
Fluoranthene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 13:38	1
Fluorene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 13:38	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 13:38	1
Naphthalene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 13:38	1
Perylene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 13:38	1
Phenanthrene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 13:38	1
Pyrene	ND		0.005	0.001	µg/L		05/02/24 00:00	06/02/24 13:38	1

Surrogate	Blank %Recovery	Blank Qualifier	Limits	Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	*127*		*27 - 133*	*05/02/24 00:00*	*06/02/24 13:38*	*1*
(d10-Phenanthrene)	*122*		*43 - 129*	*05/02/24 00:00*	*06/02/24 13:38*	*1*
(d12-Chrysene)	*128*		*52 - 144*	*05/02/24 00:00*	*06/02/24 13:38*	*1*
(d12-Perylene)	*111*		*36 - 161*	*05/02/24 00:00*	*06/02/24 13:38*	*1*
(d8-Naphthalene)	*118*		*25 - 125*	*05/02/24 00:00*	*06/02/24 13:38*	*1*

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

Lab Sample ID: 117673-BS1
Matrix: BlankMatrix
Analysis Batch: O-45052

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: O-45052_P

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
1-Methylnaphthalene			0.5	0.488		µg/L		98	31 - 128		
1-Methylphenanthrene			0.5	0.512		µg/L		102	66 - 127		
2,3,5-Trimethylnaphthalene			0.5	0.494		µg/L		99	55 - 122		
2,6-Dimethylnaphthalene			0.5	0.478		µg/L		96	48 - 120		
2-Methylnaphthalene			0.5	0.463		µg/L		93	47 - 130		
Acenaphthene			0.5	0.494		µg/L		99	53 - 131		
Acenaphthylene			0.5	0.501		µg/L		100	43 - 140		
Anthracene			0.5	0.545		µg/L		109	58 - 135		
Benz[a]anthracene			0.5	0.708		µg/L		142	55 - 145		
Benzo[a]pyrene			0.5	0.451		µg/L		90	51 - 143		
Benzo[b]fluoranthene			0.5	0.649		µg/L		130	46 - 165		
Benzo[e]pyrene			0.5	0.467		µg/L		93	42 - 152		
Benzo[g,h,i]perylene			0.5	0.556		µg/L		111	63 - 133		
Benzo[k]fluoranthene			0.5	0.593		µg/L		119	56 - 145		
Biphenyl			0.5	0.475		µg/L		95	56 - 119		
Chrysene			0.5	0.49		µg/L		98	56 - 141		
Dibenz[a,h]anthracene			0.5	0.605		µg/L		121	55 - 150		
Dibenzo[a,l]pyrene			0.5	0.446		µg/L		89	50 - 150		
Dibenzothiophene			0.5	0.504		µg/L		101	46 - 126		
Disalicylidenepropanediamine			50	41		µg/L		82	50 - 150		
Fluoranthene			0.5	0.546		µg/L		109	60 - 146		
Fluorene			0.5	0.478		µg/L		96	58 - 131		
Indeno[1,2,3-cd]pyrene			0.5	0.57		µg/L		114	50 - 151		
Naphthalene			0.5	0.445		µg/L		89	41 - 126		
Perylene			0.5	0.504		µg/L		101	48 - 141		
Phenanthrene			0.5	0.539		µg/L		108	67 - 127		
Pyrene			0.5	0.542		µg/L		108	54 - 156		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
(d10-Acenaphthene)	*120*		*27 - 133*
(d10-Phenanthrene)	*119*		*43 - 129*
(d12-Chrysene)	*117*		*52 - 144*
(d12-Perylene)	*113*		*36 - 161*
(d8-Naphthalene)	*108*		*25 - 125*

Lab Sample ID: 117673-BS2
Matrix: BlankMatrix
Analysis Batch: O-45052

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: O-45052_P

Analyte			Spike Added	LCS DUP Result	LCS DUP Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1-Methylnaphthalene			0.5	0.503		µg/L		101	31 - 128	3	30
1-Methylphenanthrene			0.5	0.524		µg/L		105	66 - 127	3	30
2,3,5-Trimethylnaphthalene			0.5	0.51		µg/L		102	55 - 122	3	30
2,6-Dimethylnaphthalene			0.5	0.495		µg/L		99	48 - 120	3	30
2-Methylnaphthalene			0.5	0.469		µg/L		94	47 - 130	1	30
Acenaphthene			0.5	0.514		µg/L		103	53 - 131	4	30
Acenaphthylene			0.5	0.516		µg/L		103	43 - 140	3	30
Anthracene			0.5	0.499		µg/L		100	58 - 135	9	30

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

Lab Sample ID: 117673-BS2
Matrix: BlankMatrix
Analysis Batch: O-45052

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: O-45052_P

Analyte			Spike Added	LCS DUP Result	LCS DUP Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benz[a]anthracene			0.5	0.716		µg/L		143	55 - 145	1	30
Benzo[a]pyrene			0.5	0.463		µg/L		93	51 - 143	3	30
Benzo[b]fluoranthene			0.5	0.646		µg/L		129	46 - 165	1	30
Benzo[e]pyrene			0.5	0.465		µg/L		93	42 - 152	0	30
Benzo[g,h,i]perylene			0.5	0.542		µg/L		108	63 - 133	3	30
Benzo[k]fluoranthene			0.5	0.58		µg/L		116	56 - 145	3	30
Biphenyl			0.5	0.495		µg/L		99	56 - 119	4	30
Chrysene			0.5	0.503		µg/L		101	56 - 141	3	30
Dibenz[a,h]anthracene			0.5	0.612		µg/L		122	55 - 150	1	30
Dibenzo[a,l]pyrene			0.5	0.449		µg/L		90	50 - 150	1	30
Dibenzothiophene			0.5	0.512		µg/L		102	46 - 126	1	30
Disalicylidenepropanediamine			50	40.1		µg/L		80	50 - 150	2	30
Fluoranthene			0.5	0.56		µg/L		112	60 - 146	3	30
Fluorene			0.5	0.503		µg/L		101	58 - 131	5	30
Indeno[1,2,3-cd]pyrene			0.5	0.592		µg/L		118	50 - 151	3	30
Naphthalene			0.5	0.457		µg/L		91	41 - 126	2	30
Perylene			0.5	0.516		µg/L		103	48 - 141	2	30
Phenanthrene			0.5	0.552		µg/L		110	67 - 127	2	30
Pyrene			0.5	0.552		µg/L		110	54 - 156	2	30

Surrogate	*LCS DUP %Recovery*	*LCS DUP Qualifier*	*Limits*
(d10-Acenaphthene)	*123*		*27 - 133*
(d10-Phenanthrene)	*124*		*43 - 129*
(d12-Chrysene)	*121*		*52 - 144*
(d12-Perylene)	*115*		*36 - 161*
(d8-Naphthalene)	*112*		*25 - 125*

GC VOA

Analysis Batch: 438875

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-93697-1	MOANALUA WELLS	Total/NA	Drinking Water	8015B GRO LL	
380-93697-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	8015B GRO LL	
380-93697-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	8015B GRO LL	
380-93697-4	HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Drinking Water	8015B GRO LL	
380-93697-5	TB MOANALUA WELLS	Total/NA	Water	8015B GRO LL	
380-93697-6	TB AIEA GULCH WELLS PUMP 2	Total/NA	Water	8015B GRO LL	
380-93697-7	TB AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Water	8015B GRO LL	
380-93697-8	TB HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Water	8015B GRO LL	
MB 570-438875/6	Method Blank	Total/NA	Water	8015B GRO LL	
LCS 570-438875/4	Lab Control Sample	Total/NA	Water	8015B GRO LL	
LCSD 570-438875/5	Lab Control Sample Dup	Total/NA	Water	8015B GRO LL	
MRL 570-438875/3	Lab Control Sample	Total/NA	Water	8015B GRO LL	
570-182373-B-1 MS	Matrix Spike	Total/NA	Water	8015B GRO LL	
570-182373-C-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8015B GRO LL	

GC Semi VOA

Prep Batch: 437817

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-93697-1	MOANALUA WELLS	Total/NA	Drinking Water	3510C	
380-93697-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	3510C	
380-93697-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	3510C	
380-93697-4	HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Drinking Water	3510C	
MB 570-437817/1-A	Method Blank	Total/NA	Water	3510C	
LCS 570-437817/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 570-437817/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
MRL 570-437817/4-A	Lab Control Sample	Total/NA	Water	3510C	

Analysis Batch: 439864

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-93697-1	MOANALUA WELLS	Total/NA	Drinking Water	8015B	437817
380-93697-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	8015B	437817
380-93697-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	8015B	437817
380-93697-4	HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Drinking Water	8015B	437817
LCS 570-437817/2-A	Lab Control Sample	Total/NA	Water	8015B	437817
LCSD 570-437817/3-A	Lab Control Sample Dup	Total/NA	Water	8015B	437817
MRL 570-437817/4-A	Lab Control Sample	Total/NA	Water	8015B	437817

Analysis Batch: 443235

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-437817/1-A	Method Blank	Total/NA	Water	8015B	437817

Subcontract

Analysis Batch: O-45052

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-93697-1	MOANALUA WELLS	Total/NA	Drinking Water	625 PAH Physis LL (EAL) + TICs	O-45052_P
380-93697-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	625 PAH Physis LL (EAL) + TICs	O-45052_P
380-93697-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	625 PAH Physis LL (EAL) + TICs	O-45052_P

Subcontract (Continued)

Analysis Batch: O-45052 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-93697-4	HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Drinking Water	625 PAH Physis LL (EAL) + TICs	O-45052_P
117673-B1	Method Blank	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-45052_P
117673-BS1	Lab Control Sample	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-45052_P
117673-BS2	Lab Control Sample Dup	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-45052_P

Prep Batch: O-45052_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-93697-1	MOANALUA WELLS	Total/NA	Drinking Water	EPA_625	
380-93697-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	EPA_625	
380-93697-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	EPA_625	
380-93697-4	HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Drinking Water	EPA_625	
117673-B1	Method Blank	Total/NA	BlankMatrix	EPA_625	
117673-BS1	Lab Control Sample	Total/NA	BlankMatrix	EPA_625	
117673-BS2	Lab Control Sample Dup	Total/NA	BlankMatrix	EPA_625	

Lab Chronicle

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

Job ID: 380-93697-1
SDG: 625, 8015

Client Sample ID: MOANALUA WELLS

Lab Sample ID: 380-93697-1

Date Collected: 04/29/24 10:15

Matrix: Drinking Water

Date Received: 05/01/24 09:31

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015B GRO LL		1	438875	A9VE	EET CAL 4	05/09/24 15:24
Total/NA	Prep	3510C			437817	UFLU	EET CAL 4	05/06/24 16:54
Total/NA	Analysis	8015B		1	439864	SP9M	EET CAL 4	05/13/24 01:19
Total/NA	Prep	EPA_625		1	O-45052_P			05/02/24 00:00
Total/NA	Analysis	625 PAH Physis LL (EAL) + TICs		1	O-45052	YC		06/02/24 19:05

Client Sample ID: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-93697-2

Date Collected: 04/29/24 11:03

Matrix: Drinking Water

Date Received: 05/01/24 09:31

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015B GRO LL		1	438875	A9VE	EET CAL 4	05/09/24 15:50
Total/NA	Prep	3510C			437817	UFLU	EET CAL 4	05/06/24 16:54
Total/NA	Analysis	8015B		1	439864	SP9M	EET CAL 4	05/13/24 01:40
Total/NA	Prep	EPA_625		1	O-45052_P			05/02/24 00:00
Total/NA	Analysis	625 PAH Physis LL (EAL) + TICs		1	O-45052	YC		06/02/24 20:54

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

Lab Sample ID: 380-93697-3

Date Collected: 04/29/24 11:25

Matrix: Drinking Water

Date Received: 05/01/24 09:31

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015B GRO LL		1	438875	A9VE	EET CAL 4	05/09/24 16:16
Total/NA	Prep	3510C			437817	UFLU	EET CAL 4	05/06/24 16:54
Total/NA	Analysis	8015B		1	439864	SP9M	EET CAL 4	05/13/24 02:01
Total/NA	Prep	EPA_625		1	O-45052_P			05/02/24 00:00
Total/NA	Analysis	625 PAH Physis LL (EAL) + TICs		1	O-45052	YC		06/02/24 22:43

Client Sample ID: HALAWA WELLS UNITS 1 & 2 P1

Lab Sample ID: 380-93697-4

Date Collected: 04/29/24 10:37

Matrix: Drinking Water

Date Received: 05/01/24 09:31

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015B GRO LL		1	438875	A9VE	EET CAL 4	05/09/24 16:42
Total/NA	Prep	3510C			437817	UFLU	EET CAL 4	05/06/24 16:54
Total/NA	Analysis	8015B		1	439864	SP9M	EET CAL 4	05/13/24 02:22
Total/NA	Prep	EPA_625		1	O-45052_P			05/02/24 00:00
Total/NA	Analysis	625 PAH Physis LL (EAL) + TICs		1	O-45052	YC		06/03/24 00:31

Lab Chronicle

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

Job ID: 380-93697-1
SDG: 625, 8015

Client Sample ID: TB MOANALUA WELLS
Lab Sample ID: 380-93697-5
Date Collected: 04/29/24 10:15
Matrix: Water
Date Received: 05/01/24 09:31

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015B GRO LL		1	438875	A9VE	EET CAL 4	05/09/24 13:40

Client Sample ID: TB AIEA GULCH WELLS PUMP 2
Lab Sample ID: 380-93697-6
Date Collected: 04/29/24 11:03
Matrix: Water
Date Received: 05/01/24 09:31

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015B GRO LL		1	438875	A9VE	EET CAL 4	05/09/24 14:06

Client Sample ID: TB AIEA WELLS PUMPS 1&2 (260) P2
Lab Sample ID: 380-93697-7
Date Collected: 04/29/24 11:25
Matrix: Water
Date Received: 05/01/24 09:31

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015B GRO LL		1	438875	A9VE	EET CAL 4	05/09/24 14:32

Client Sample ID: TB HALAWA WELLS UNITS 1 & 2 P1
Lab Sample ID: 380-93697-8
Date Collected: 04/29/24 10:37
Matrix: Water
Date Received: 05/01/24 09:31

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015B GRO LL		1	438875	A9VE	EET CAL 4	05/09/24 14:58

Laboratory References:

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

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

Accreditation/Certification Summary

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

Job ID: 380-93697-1
SDG: 625, 8015

Laboratory: Eurofins Calscience

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

Authority	Program	Identification Number	Expiration Date
Arizona	State	AZ0830	11-16-24
California	Los Angeles County Sanitation Districts	10109	08-01-24
California	State	3082	07-31-24
Kansas	NELAP	E-10420	08-01-24
Nevada	State	CA00111	07-31-24
Oregon	NELAP	4175	02-03-25
USDA	US Federal Programs	P330-22-00059	06-08-26
Washington	State	C916-18	10-11-24

Method Summary

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

Job ID: 380-93697-1
SDG: 625, 8015

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

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

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

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

Sample Summary

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

Job ID: 380-93697-1
SDG: 625, 8015

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	PWSID Number
380-93697-1	MOANALUA WELLS	Drinking Water	04/29/24 10:15	05/01/24 09:31	HI0000331
380-93697-2	AIEA GULCH WELLS PUMP 2	Drinking Water	04/29/24 11:03	05/01/24 09:31	HI0000331
380-93697-3	AIEA WELLS PUMPS 1&2 (260) P2	Drinking Water	04/29/24 11:25	05/01/24 09:31	HI0000331
380-93697-4	HALAWA WELLS UNITS 1 & 2 P1	Drinking Water	04/29/24 10:37	05/01/24 09:31	HI0000331
380-93697-5	TB MOANALUA WELLS	Water	04/29/24 10:15	05/01/24 09:31	
380-93697-6	TB AIEA GULCH WELLS PUMP 2	Water	04/29/24 11:03	05/01/24 09:31	
380-93697-7	TB AIEA WELLS PUMPS 1&2 (260) P2	Water	04/29/24 11:25	05/01/24 09:31	
380-93697-8	TB HALAWA WELLS UNITS 1 & 2 P1	Water	04/29/24 10:37	05/01/24 09:31	

June 10, 2024

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

Project Name: RED HILL PO# 38001111 JOB # 380-93697-1
Physis Project ID: 1407003-508

Dear Rachelle,

Enclosed are the analytical results for samples submitted to PHYSIS Environmental Laboratories, Inc. (PHYSIS) on 5/2/2024. A total of 4 samples were received for analysis in accordance with the attached chain of custody (COC). Per the COC, the samples were analyzed for:

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

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

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

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

PROJECT SAMPLE LIST

Eurofins Eaton Analytical

PHYSIS Project ID: 1407003-508

RED HILL PO# 38001111 JOB # 380-93697-1

Total Samples: 4

PHYSIS ID	Sample ID	Description	Date	Time	Matrix	Sample Type
117674	MOANALUA WELLS	380-93697-1	4/29/2024	10:15	Samplewater	Not Specified
117675	AIEA GULCH WELLS PUMP 2	380-93697-2	4/29/2024	11:03	Samplewater	Not Specified
117676	AIEA WELLS PUMPS 1&2 (260)	380-93697-3	4/29/2024	11:25	Samplewater	Not Specified
117677	HALAWA WELLS UNITS 1&2 P1	380-93697-4	4/29/2024	10:37	Samplewater	Not Specified

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

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

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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.

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SURROGATES: A surrogate is a pure analyte unlikely to be found in any project sample, behaves similarly to the target analyte and most often used with organic analytical procedures. Surrogates are added in known concentration to all samples and are measured to indicate overall efficiency of the method including processing and analyses.

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

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

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

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PHYSIS QUALIFIER CODES

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

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CASE NARRATIVE

QUALIFIER NOTES

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

ND

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

ANALYTICAL REPORT

PHYSIS Project ID: 1407003-508
Client: Eurofins Eaton Analytical
Project: RED HILL PO# 38001111 JOB # 380-93697-1

Base/Neutral Extractable Compounds

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Sample ID: 117674-R1	**MOANALUA WELLS 380-93697-1**	**Matrix:**	**Samplewater**				**Sampled:**	**29-Apr-24 10:15**		**Received:**	**02-May-24**
Disalicylidenepropanediamine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-45052	02-May-24	02-Jun-24
Sample ID: 117675-R1	**AIEA GULCH WELLS PUMP 2 380-9**	**Matrix:**	**Samplewater**				**Sampled:**	**29-Apr-24 11:03**		**Received:**	**02-May-24**
Disalicylidenepropanediamine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-45052	02-May-24	02-Jun-24
Sample ID: 117676-R1	**AIEA WELLS PUMPS 1&2 (260) 380-**	**Matrix:**	**Samplewater**				**Sampled:**	**29-Apr-24 11:25**		**Received:**	**02-May-24**
Disalicylidenepropanediamine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-45052	02-May-24	02-Jun-24
Sample ID: 117677-R1	**HALAWA WELLS UNITS 1&2 P1 380-**	**Matrix:**	**Samplewater**				**Sampled:**	**29-Apr-24 10:37**		**Received:**	**02-May-24**
Disalicylidenepropanediamine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-45052	02-May-24	03-Jun-24

Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Sample ID: 117674-R1	**MOANALUA WELLS 380-93697-1**		**Matrix: Samplewater**				**Sampled: 29-Apr-24 10:15**			**Received: 02-May-24**	
(d10-Acenaphthene)	EPA 625.1	% Recovery	125	1			Total		O-45052	02-May-24	02-Jun-24
(d10-Phenanthrene)	EPA 625.1	% Recovery	125	1			Total		O-45052	02-May-24	02-Jun-24
(d12-Chrysene)	EPA 625.1	% Recovery	138	1			Total		O-45052	02-May-24	02-Jun-24
(d12-Perylene)	EPA 625.1	% Recovery	153	1			Total		O-45052	02-May-24	02-Jun-24
(d8-Naphthalene)	EPA 625.1	% Recovery	120	1			Total		O-45052	02-May-24	02-Jun-24
1-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
1-Methylphenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
2,3,5-Trimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
2,6-Dimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
2-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Acenaphthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Acenaphthylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Benz[a]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Benzo[a]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Benzo[b]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Benzo[e]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Benzo[g,h,i]perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Benzo[k]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Biphenyl	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Chrysene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Dibenz[a,h]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Dibenzo[a,l]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Dibenzothiophene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24

PHYSIS Project ID: 1407003-508
Client: Eurofins Eaton Analytical
Project: RED HILL PO# 38001111 JOB # 380-93697-1

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-45052	02-May-24	02-Jun-24
Fluorene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Indeno[1,2,3-cd]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Naphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Phenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24

Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Sample ID: 117675-R1	**AIEA GULCH WELLS PUMP 2 380-9**	**Matrix: Samplewater**					**Sampled: 29-Apr-24 11:03**			**Received: 02-May-24**	
(d10-Acenaphthene)	EPA 625.1	% Recovery	123	1			Total		O-45052	02-May-24	02-Jun-24
(d10-Phenanthrene)	EPA 625.1	% Recovery	119	1			Total		O-45052	02-May-24	02-Jun-24
(d12-Chrysene)	EPA 625.1	% Recovery	117	1			Total		O-45052	02-May-24	02-Jun-24
(d12-Perylene)	EPA 625.1	% Recovery	120	1			Total		O-45052	02-May-24	02-Jun-24
(d8-Naphthalene)	EPA 625.1	% Recovery	111	1			Total		O-45052	02-May-24	02-Jun-24
1-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
1-Methylphenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
2,3,5-Trimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
2,6-Dimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
2-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Acenaphthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Acenaphthylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Benz[a]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Benzo[a]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Benzo[b]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Benzo[e]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Benzo[g,h,i]perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Benzo[k]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Biphenyl	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Chrysene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Dibenz[a,h]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Dibenzo[a,l]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Dibenzothiophene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24

PHYSIS Project ID: 1407003-508
Client: Eurofins Eaton Analytical
Project: RED HILL PO# 38001111 JOB # 380-93697-1

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-45052	02-May-24	02-Jun-24
Fluorene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Indeno[1,2,3-cd]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Naphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Phenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24

Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Sample ID: 117676-R1	**AIEA WELLS PUMPS 1&2 (260) 380-**	**Matrix: Samplewater**					**Sampled: 29-Apr-24 11:25**			**Received: 02-May-24**	
(d10-Acenaphthene)	EPA 625.1	% Recovery	129	1			Total		O-45052	02-May-24	02-Jun-24
(d10-Phenanthrene)	EPA 625.1	% Recovery	118	1			Total		O-45052	02-May-24	02-Jun-24
(d12-Chrysene)	EPA 625.1	% Recovery	112	1			Total		O-45052	02-May-24	02-Jun-24
(d12-Perylene)	EPA 625.1	% Recovery	117	1			Total		O-45052	02-May-24	02-Jun-24
(d8-Naphthalene)	EPA 625.1	% Recovery	116	1			Total		O-45052	02-May-24	02-Jun-24
1-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
1-Methylphenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
2,3,5-Trimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
2,6-Dimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
2-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Acenaphthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Acenaphthylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Benz[a]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Benzo[a]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Benzo[b]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Benzo[e]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Benzo[g,h,i]perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Benzo[k]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Biphenyl	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Chrysene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Dibenz[a,h]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Dibenzo[a,l]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Dibenzothiophene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24

PHYSIS Project ID: 1407003-508
Client: Eurofins Eaton Analytical
Project: RED HILL PO# 38001111 JOB # 380-93697-1

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-45052	02-May-24	02-Jun-24
Fluorene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Indeno[1,2,3-cd]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Naphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Phenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24
Pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	02-Jun-24

Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Sample ID: 117677-R1	**HALAWA WELLS UNITS 1&2 P1 380- Matrix: Samplewater**						**Sampled: 29-Apr-24 10:37**			**Received:**	**02-May-24**
(d10-Acenaphthene)	EPA 625.1	% Recovery	122	1			Total		O-45052	02-May-24	03-Jun-24
(d10-Phenanthrene)	EPA 625.1	% Recovery	127	1			Total		O-45052	02-May-24	03-Jun-24
(d12-Chrysene)	EPA 625.1	% Recovery	115	1			Total		O-45052	02-May-24	03-Jun-24
(d12-Perylene)	EPA 625.1	% Recovery	114	1			Total		O-45052	02-May-24	03-Jun-24
(d8-Naphthalene)	EPA 625.1	% Recovery	117	1			Total		O-45052	02-May-24	03-Jun-24
1-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	03-Jun-24
1-Methylphenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	03-Jun-24
2,3,5-Trimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	03-Jun-24
2,6-Dimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	03-Jun-24
2-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	03-Jun-24
Acenaphthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	03-Jun-24
Acenaphthylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	03-Jun-24
Anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	03-Jun-24
Benz[a]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	03-Jun-24
Benzo[a]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	03-Jun-24
Benzo[b]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	03-Jun-24
Benzo[e]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	03-Jun-24
Benzo[g,h,i]perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	03-Jun-24
Benzo[k]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	03-Jun-24
Biphenyl	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	03-Jun-24
Chrysene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	03-Jun-24
Dibenz[a,h]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	03-Jun-24
Dibenzo[a,l]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	03-Jun-24
Dibenzothiophene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	03-Jun-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-45052	02-May-24	03-Jun-24
Fluorene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	03-Jun-24
Indeno[1,2,3-cd]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	03-Jun-24
Naphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	03-Jun-24
Perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	03-Jun-24
Phenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	03-Jun-24
Pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-45052	02-May-24	03-Jun-24

QUALITY CONTROL REPORT

ENVIRONMENTAL LABORATORIES, INC.

Innovative Solutions for Nature

PHYSIS Project ID: 1407003-508
Client: Eurofins Eaton Analytical
Project: RED HILL PO# 38001111 JOB # 380-93697-1

Base/Neutral Extractable Compounds QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODEc
Sample ID: 117673-B1	**QAQC Procedural Blank**					**Matrix: BlankMatrix**	**Sampled:**				**Received:**			
		Method: EPA 625.1				Batch ID: O-45052		Prepared: 02-May-24			Analyzed: 02-Jun-24			
Disalicylidenepropanediamine	Total	ND	1	0.05	0.1	µg/L								
Sample ID: 117673-BS1	**QAQC Procedural Blank**					**Matrix: BlankMatrix**	**Sampled:**				**Received:**			
		Method: EPA 625.1				Batch ID: O-45052		Prepared: 02-May-24			Analyzed: 02-Jun-24			
Disalicylidenepropanediamine	Total	41	1	0.05	0.1	µg/L	50	0	82	50 - 150% PASS				
Sample ID: 117673-BS2	**QAQC Procedural Blank**					**Matrix: BlankMatrix**	**Sampled:**				**Received:**			
		Method: EPA 625.1				Batch ID: O-45052		Prepared: 02-May-24			Analyzed: 02-Jun-24			
Disalicylidenepropanediamine	Total	40.1	1	0.05	0.1	µg/L	50	0	80	50 - 150% PASS		2	30 PASS	

Polynuclear Aromatic Hydrocarbons QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS	QA CODEc
Sample ID: 117673-B1	**QAQC Procedural Blank**					**Matrix: BlankMatrix**	**Sampled:**					**Received:**	
		Method: EPA 625.1				Batch ID: O-45052		Prepared: 02-May-24				Analyzed: 02-Jun-24	
(d10-Acenaphthene)	Total	127	1			% Recovery	100	127	27 - 133%	PASS			
(d10-Phenanthrene)	Total	122	1			% Recovery	100	122	43 - 129%	PASS			
(d12-Chrysene)	Total	128	1			% Recovery	100	128	52 - 144%	PASS			
(d12-Perylene)	Total	111	1			% Recovery	100	111	36 - 161%	PASS			
(d8-Naphthalene)	Total	118	1			% Recovery	100	118	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 LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS	QA CODEc
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 LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS	QA CODEc
Sample ID: 117673-BS1	**QAQC Procedural Blank**					**Matrix: BlankMatrix**		**Sampled:**				**Received:**	
	Method: EPA 625.1					Batch ID: O-45052		Prepared: 02-May-24				Analyzed: 02-Jun-24	
(d10-Acenaphthene)	Total	120	1			% Recovery	100	0	120	27 - 133%	PASS		
(d10-Phenanthrene)	Total	119	1			% Recovery	100	0	119	43 - 129%	PASS		
(d12-Chrysene)	Total	117	1			% Recovery	100	0	117	52 - 144%	PASS		
(d12-Perylene)	Total	113	1			% Recovery	100	0	113	36 - 161%	PASS		
(d8-Naphthalene)	Total	108	1			% Recovery	100	0	108	25 - 125%	PASS		
1-Methylnaphthalene	Total	0.488	1	0.001	0.005	µg/L	0.5	0	98	31 - 128%	PASS		
1-Methylphenanthrene	Total	0.512	1	0.001	0.005	µg/L	0.5	0	102	66 - 127%	PASS		
2,3,5-Trimethylnaphthalene	Total	0.494	1	0.001	0.005	µg/L	0.5	0	99	55 - 122%	PASS		
2,6-Dimethylnaphthalene	Total	0.478	1	0.001	0.005	µg/L	0.5	0	96	48 - 120%	PASS		
2-Methylnaphthalene	Total	0.463	1	0.001	0.005	µg/L	0.5	0	93	47 - 130%	PASS		
Acenaphthene	Total	0.494	1	0.001	0.005	µg/L	0.5	0	99	53 - 131%	PASS		
Acenaphthylene	Total	0.501	1	0.001	0.005	µg/L	0.5	0	100	43 - 140%	PASS		
Anthracene	Total	0.545	1	0.001	0.005	µg/L	0.5	0	109	58 - 135%	PASS		
Benz[a]anthracene	Total	0.708	1	0.001	0.005	µg/L	0.5	0	142	55 - 145%	PASS		
Benzo[a]pyrene	Total	0.451	1	0.001	0.005	µg/L	0.5	0	90	51 - 143%	PASS		
Benzo[b]fluoranthene	Total	0.649	1	0.001	0.005	µg/L	0.5	0	130	46 - 165%	PASS		
Benzo[e]pyrene	Total	0.467	1	0.001	0.005	µg/L	0.5	0	93	42 - 152%	PASS		
Benzo[g,h,i]perylene	Total	0.556	1	0.001	0.005	µg/L	0.5	0	111	63 - 133%	PASS		
Benzo[k]fluoranthene	Total	0.593	1	0.001	0.005	µg/L	0.5	0	119	56 - 145%	PASS		
Biphenyl	Total	0.475	1	0.001	0.005	µg/L	0.5	0	95	56 - 119%	PASS		
Chrysene	Total	0.49	1	0.001	0.005	µg/L	0.5	0	98	56 - 141%	PASS		
Dibenz[a,h]anthracene	Total	0.605	1	0.001	0.005	µg/L	0.5	0	121	55 - 150%	PASS		
Dibenzo[a,l]pyrene	Total	0.446	1	0.001	0.005	µg/L	0.5	0	89	50 - 150%	PASS		

PHYSIS Project ID: 1407003-508
Client: Eurofins Eaton Analytical
Project: RED HILL PO# 38001111 JOB # 380-93697-1

Polynuclear Aromatic Hydrocarbons QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODEc
Dibenzothiophene	Total	0.504	1	0.001	0.005	µg/L	0.5	0	101	46 - 126%	PASS			
Fluoranthene	Total	0.546	1	0.001	0.005	µg/L	0.5	0	109	60 - 146%	PASS			
Fluorene	Total	0.478	1	0.001	0.005	µg/L	0.5	0	96	58 - 131%	PASS			
Indeno[1,2,3-cd]pyrene	Total	0.57	1	0.001	0.005	µg/L	0.5	0	114	50 - 151%	PASS			
Naphthalene	Total	0.445	1	0.001	0.005	µg/L	0.5	0	89	41 - 126%	PASS			
Perylene	Total	0.504	1	0.001	0.005	µg/L	0.5	0	101	48 - 141%	PASS			
Phenanthrene	Total	0.539	1	0.001	0.005	µg/L	0.5	0	108	67 - 127%	PASS			
Pyrene	Total	0.542	1	0.001	0.005	µg/L	0.5	0	108	54 - 156%	PASS			

Polynuclear Aromatic Hydrocarbons QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODEc
Sample ID: 117673-BS2	**QAQC Procedural Blank**					**Matrix: BlankMatrix**		**Sampled:**				**Received:**		
		Method: EPA 625.1				Batch ID: O-45052		Prepared: 02-May-24				Analyzed: 02-Jun-24		
(d10-Acenaphthene)	Total	123	1			% Recovery	100	0	123	27 - 133%	PASS	2	30	PASS
(d10-Phenanthrene)	Total	124	1			% Recovery	100	0	124	43 - 129%	PASS	4	30	PASS
(d12-Chrysene)	Total	121	1			% Recovery	100	0	121	52 - 144%	PASS	3	30	PASS
(d12-Perylene)	Total	115	1			% Recovery	100	0	115	36 - 161%	PASS	2	30	PASS
(d8-Naphthalene)	Total	112	1			% Recovery	100	0	112	25 - 125%	PASS	4	30	PASS
1-Methylnaphthalene	Total	0.503	1	0.001	0.005	µg/L	0.5	0	101	31 - 128%	PASS	3	30	PASS
1-Methylphenanthrene	Total	0.524	1	0.001	0.005	µg/L	0.5	0	105	66 - 127%	PASS	3	30	PASS
2,3,5-Trimethylnaphthalene	Total	0.51	1	0.001	0.005	µg/L	0.5	0	102	55 - 122%	PASS	3	30	PASS
2,6-Dimethylnaphthalene	Total	0.495	1	0.001	0.005	µg/L	0.5	0	99	48 - 120%	PASS	3	30	PASS
2-Methylnaphthalene	Total	0.469	1	0.001	0.005	µg/L	0.5	0	94	47 - 130%	PASS	1	30	PASS
Acenaphthene	Total	0.514	1	0.001	0.005	µg/L	0.5	0	103	53 - 131%	PASS	4	30	PASS
Acenaphthylene	Total	0.516	1	0.001	0.005	µg/L	0.5	0	103	43 - 140%	PASS	3	30	PASS
Anthracene	Total	0.499	1	0.001	0.005	µg/L	0.5	0	100	58 - 135%	PASS	9	30	PASS
Benz[a]anthracene	Total	0.716	1	0.001	0.005	µg/L	0.5	0	143	55 - 145%	PASS	1	30	PASS
Benzo[a]pyrene	Total	0.463	1	0.001	0.005	µg/L	0.5	0	93	51 - 143%	PASS	3	30	PASS
Benzo[b]fluoranthene	Total	0.646	1	0.001	0.005	µg/L	0.5	0	129	46 - 165%	PASS	1	30	PASS
Benzo[e]pyrene	Total	0.465	1	0.001	0.005	µg/L	0.5	0	93	42 - 152%	PASS	0	30	PASS
Benzo[g,h,i]perylene	Total	0.542	1	0.001	0.005	µg/L	0.5	0	108	63 - 133%	PASS	3	30	PASS
Benzo[k]fluoranthene	Total	0.58	1	0.001	0.005	µg/L	0.5	0	116	56 - 145%	PASS	3	30	PASS
Biphenyl	Total	0.495	1	0.001	0.005	µg/L	0.5	0	99	56 - 119%	PASS	4	30	PASS
Chrysene	Total	0.503	1	0.001	0.005	µg/L	0.5	0	101	56 - 141%	PASS	3	30	PASS
Dibenz[a,h]anthracene	Total	0.612	1	0.001	0.005	µg/L	0.5	0	122	55 - 150%	PASS	1	30	PASS
Dibenzo[a,l]pyrene	Total	0.449	1	0.001	0.005	µg/L	0.5	0	90	50 - 150%	PASS	1	30	PASS

PHYSIS Project ID: 1407003-508
Client: Eurofins Eaton Analytical
Project: RED HILL PO# 38001111 JOB # 380-93697-1

Polynuclear Aromatic Hydrocarbons QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS		QA CODEc
Dibenzothiophene	Total	0.512	1	0.001	0.005	µg/L	0.5	0	102	46 - 126%	PASS	1	30	PASS	
Fluoranthene	Total	0.56	1	0.001	0.005	µg/L	0.5	0	112	60 - 146%	PASS	3	30	PASS	
Fluorene	Total	0.503	1	0.001	0.005	µg/L	0.5	0	101	58 - 131%	PASS	5	30	PASS	
Indeno[1,2,3-cd]pyrene	Total	0.592	1	0.001	0.005	µg/L	0.5	0	118	50 - 151%	PASS	3	30	PASS	
Naphthalene	Total	0.457	1	0.001	0.005	µg/L	0.5	0	91	41 - 126%	PASS	2	30	PASS	
Perylene	Total	0.516	1	0.001	0.005	µg/L	0.5	0	103	48 - 141%	PASS	2	30	PASS	
Phenanthrene	Total	0.552	1	0.001	0.005	µg/L	0.5	0	110	67 - 127%	PASS	2	30	PASS	
Pyrene	Total	0.552	1	0.001	0.005	µg/L	0.5	0	110	54 - 156%	PASS	2	30	PASS	

TENTATIVELY IDENTIFIED COMPOUNDS

Sample ID: 117674

Retention Time	Area (% of total)	Concentration (ng/L)	Library/ID	Cas Number	Match Quality (%)
35.0650	0.7444	1111	Anthracene-D10-	1517-22-2	96
10.0399	22.2760	33248	Cyclopentane, 1,2,3,4,5-pentamethyl-	1000152-79-7	90
10.4278	8.2084	12252	Octane, 3-methyl-6-methylene-	74630-07-2	89
10.2403	3.9774	5937	2,3,3-Trimethyl-1-hexene	1000113-52-1	86
10.2135	2.8012	4181	1H-Tetrazole	288-94-8	81
10.5384	1.7141	2558	1-Hexene, 4,5-dimethyl-	16106-59-5	89
10.3625	1.2798	1910	Sulfurous acid, di(cyclohexylmethyl) ester	1010309-22-7	82
10.1002	0.6200	925	2-Pyrazoline, 1-isobutyl-3-methyl-	26964-53-4	84
10.0773	0.5363	800	Diazenecarboximidoyl bromide	1000460-67-9	83
10.0681	0.1948	291	1-(1,3-Dimethyl-1H-pyrazol-4-yl)ethanone	52773-23-6	82
16.4821	0.1904	284	3-Hexene, 3-ethyl-2,5-dimethyl-	62338-08-3	85
45.9385	0.1839	274	Terephthalic acid, isobutyl butyl ester	1000323-56-2	96
17.4635	0.1461	218	3-Octene, 2,2-dimethyl-	86869-76-3	87
10.6730	0.1433	214	Oxalic acid, cyclohexyl pentyl ester	1000309-30-6	86
67.3531	0.1277	191	1,4-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester	6422-86-2	97
11.5590	0.1204	180	Cyclohexane, (1,2-dimethylpropyl)-	51284-29-8	82
10.3158	0.1018	152	3-Pentanol, 2-methyl-	565-67-3	84
11.1168	0.0973	145	2-Sec-Butylcyclohexanone	14765-30-1	84
10.7874	0.0943	141	5-Isopropyl-3,3-dimethyl-2-methylene-2,3-dihydrofuran	81250-44-4	88
63.0882	0.0914	136	Heneicosane	629-94-7	95
10.0008	0.0893	133	2-Thiophenecarboxylic acid, 4-nitrophenyl ester	1000308-06-7	84
11.1170	0.0859	128	Ether, tert-butyl isopropylidenecyclopropyl	24524-56-9	83
60.0854	0.0762	114	Nonadecane, 2-methyl-	1560-86-7	91

Concentration estimated using the response for Anthracene-d10

Sample ID: 117675

Retention Time	Area (% of total)	Concentration (ng/L)	Library/ID	Cas Number	Match Quality (%)
35.0626	0.9985	1111	Anthracene-D10-	1719-06-8	97
10.0389	25.2233	28068	Cyclopentane, 1,2,3,4,5-pentamethyl-	1000152-79-7	90
10.4872	18.7288	20841	Cyclohexane, 1-methyl-3-propyl-	4291-80-9	94
10.4281	8.8897	9892	1-Hexene, 4,5-dimethyl-	16106-59-5	89
10.2402	3.3178	3692	2,3,3-Trimethyl-1-hexene	1000113-52-1	85
10.2122	3.2249	3589	1H-Tetrazole	288-94-8	80
10.5392	2.0605	2293	Octane, 3-methyl-6-methylene-	74630-07-2	87
10.3623	1.4141	1574	2H-Pyran, 3,4-dihydro-6-methyl-	16015-11-5	84
10.0991	0.6804	757	2-Pyrazoline, 1-isobutyl-3-methyl-	26964-53-4	84
16.6612	0.4693	522	3-Hexene, 3-ethyl-2,5-dimethyl-	62338-08-3	85
45.9299	0.2765	308	Terephthalic acid, isobutyl butyl ester	1000323-56-2	96
16.4828	0.2466	274	Cyclohexane, 1,2,4,5-tetraethyl-, (1.alpha.,2.alpha.,4.alpha.,5.alpha.)-	61142-24-3	85
67.3541	0.2300	256	1,4-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester	6422-86-2	97
10.0676	0.2191	244	1-(1,3-Dimethyl-1H-pyrazol-4-yl)ethanone	52773-23-6	82
17.4660	0.1811	201	3-Octene, 2,2-dimethyl-	86869-76-3	86
10.6734	0.1726	192	1,5-Heptadien-4-one, 3,3,6-trimethyl-	546-49-6	86
63.0868	0.1513	168	Hexacosane	630-01-3	95
69.6540	0.1322	147	Squalene	111-02-4	96
65.9740	0.1316	146	Heneicosane	629-94-7	95
11.1193	0.1125	125	2-Sec-Butylcyclohexanone	14765-30-1	85
10.7880	0.1124	125	5-Isopropyl-3,3-dimethyl-2-methylene-2,3-dihydrofuran	81250-44-4	88
68.7715	0.0998	111	Eicosane	112-95-8	93
11.1186	0.0988	110	Cyclohexanone, 4-(1,1-dimethylethyl)-	98-53-3	83

Concentration estimated using the response for Anthracene-d10

Sample ID: 117676

Retention Time	Area (% of total)	Concentration (ng/L)	Library/ID	Cas Number	Match Quality (%)
35.0617	0.8577	1111	Anthracene-D10-	1719-06-8	97
10.0350	21.1614	27415	Cyclopentane, 1,2,3,4,5-pentamethyl-	1000152-79-7	90
10.4246	7.4765	9686	Octane, 3-methyl-6-methylene-	74630-07-2	89
10.2380	2.6747	3465	2,3,3-Trimethyl-1-hexene	1000113-52-1	84
63.0792	0.6435	834	Heneicosane	629-94-7	96
65.9730	0.5719	741	Heptacosane	593-49-7	95
10.0967	0.5599	725	2-Pyrazoline, 1-isobutyl-3-methyl-	26964-53-4	84
10.1624	0.5318	689	1-Hexene, 4,5-dimethyl-	16106-59-5	90
10.4810	0.4601	596	1H-Tetrazole	288-94-8	99
71.4658	0.2769	359	Hentriacontane	630-04-6	94
56.9593	0.2542	329	Tetracosane	646-31-1	98
45.9340	0.2458	318	Terephthalic acid, isobutyl butyl ester	1000323-56-2	95
67.3544	0.2275	295	1,4-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester	6422-86-2	98
16.4829	0.1988	258	3-Hexene, 3-ethyl-2,5-dimethyl-	62338-08-3	84
10.0651	0.1735	225	1-(1,3-Dimethyl-1H-pyrazol-4-yl)ethanone	52773-23-6	82
17.4659	0.1526	198	3-Octene, 2,2-dimethyl-	86869-76-3	85
10.6726	0.1378	179	1,5-Heptadien-4-one, 3,3,6-trimethyl-	546-49-6	85
11.1162	0.1279	166	2-Sec-Butylcyclohexanone	14765-30-1	86
11.5609	0.1126	146	Cyclohexane, (1,2-dimethylpropyl)-	51284-29-8	82
69.6472	0.1075	139	Squalene	111-02-4	95
11.1178	0.0953	123	Cyclohexanone, 4-(1,1-dimethylethyl)-	98-53-3	85
10.7867	0.0952	123	5-Isopropyl-3,3-dimethyl-2-methylene-2,3-dihydrofuran	81250-44-4	88
32.1920	0.0843	109	Benzoic acid, 2-ethylhexyl ester	5444-75-7	96

Concentration estimated using the response for Anthracene-d10

Sample ID: 117677

Retention Time	Area (% of total)	Concentration (ng/L)	Library/ID	Cas Number	Match Quality (%)
35.0632	0.6873	1111	Anthracene-D10-	1719-06-8	97
10.0404	20.7648	33567	Cyclopentane, 1,2,3,4,5-pentamethyl-	1000152-79-7	90
10.4288	7.2556	11729	Octane, 3-methyl-6-methylene-	74630-07-2	89
10.2414	3.4828	5630	2,3,3-Trimethyl-1-hexene	1000113-52-1	85
10.2153	2.6757	4325	1H-Tetrazole	288-94-8	81
10.5403	1.6147	2610	1-Hexene, 4,5-dimethyl-	16106-59-5	89
10.3633	1.1253	1819	2H-Pyran, 3,4-dihydro-6-methyl-	16015-11-5	87
63.0795	0.7526	1217	Hexacosane	630-01-3	96
65.9722	0.6356	1027	Heptacosane	593-49-7	96
10.1019	0.6260	1012	2-Pyrazoline, 1-isobutyl-3-methyl-	26964-53-4	84
60.0754	0.5925	958	Heneicosane	629-94-7	94
68.7717	0.4808	777	Hentriacontane	630-04-6	96
68.7712	0.4763	770	Tetracosane	646-31-1	96
16.6583	0.3615	584	3-Hexene, 3-ethyl-2,5-dimethyl-	62338-08-3	83
45.9366	0.2039	330	Terephthalic acid, isobutyl butyl ester	1000323-56-2	96
67.3553	0.1840	297	1,4-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester	6422-86-2	98
10.0689	0.1777	287	1-(1,3-Dimethyl-1H-pyrazol-4-yl)ethanone	52773-23-6	81
10.6740	0.1542	249	1,5-Heptadien-4-one, 3,3,6-trimethyl-	546-49-6	87
17.4646	0.1449	234	3-Octene, 2,2-dimethyl-	86869-76-3	85
11.5608	0.1162	188	Cyclohexane, (1,2-dimethylpropyl)-	51284-29-8	82
11.1197	0.1021	165	2-Sec-Butylcyclohexanone	14765-30-1	84
10.7891	0.0933	151	5-Isopropyl-3,3-dimethyl-2-methylene-2,3-dihydrofuran	81250-44-4	89
10.0016	0.0833	135	2-Thiophenecarboxylic acid, 4-nitrophenyl ester	1000308-06-7	82
11.1197	0.0773	125	Ether, tert-butyl isopropylidenecyclopropyl	24524-56-9	82
27.7397	0.0763	123	2,2,4-Trimethyl-1,3-pentanediol diisobutyrate	6846-50-0	97
11.0175	0.0668	108	Oxalic acid, cyclohexyl butyl ester	1000309-30-5	92
32.1941	0.0626	101	Benzoic acid, 2-ethylhexyl ester	5444-75-7	95

Concentration estimated using the response for Anthracene-d10

Sample ID: Lab Blank B1_45052

Retention Time	Area (% of total)	Concentration (ng/L)	Library/ID	Cas Number	Match Quality (%)
35.0645	0.9157	1111	Anthracene-D10-	1719-06-8	97
10.0417	27.0140	32778	Cyclopentane, 1,2,3,4,5-pentamethyl-	1000152-79-7	90
10.4872	22.8082	27675	Cyclohexane, 1-methyl-3-propyl-	4291-80-9	94
10.4295	9.5998	11648	Octane, 3-methyl-6-methylene-	74630-07-2	90
10.2416	3.6527	4432	2,3,3-Trimethyl-1-hexene	1000113-52-1	84
10.2151	3.5184	4269	Methoxyacetonitrile	1738-36-9	82
10.3629	1.5571	1889	Methyl 1-methylcyclopropyl ketone	1567-75-5	87
10.1016	0.7692	933	2-Pyrazoline, 1-isobutyl-3-methyl-	26964-53-4	83
10.4838	0.5785	702	1H-Tetrazole	288-94-8	100
10.1675	0.5426	658	trans-2-Methyl-4-hexen-3-ol	96346-76-8	83
10.1675	0.5307	644	Butane, 2-bromo-2-methyl-	507-36-8	81
16.6603	0.4998	606	3-Hexene, 3-ethyl-2,5-dimethyl-	62338-08-3	84
45.9390	0.2272	276	Terephthalic acid, isobutyl butyl ester	1000323-56-2	97
10.0699	0.2160	262	1-(1,3-Dimethyl-1H-pyrazol-4-yl)ethanone	52773-23-6	82
11.5625	0.1819	221	Dichloroacetic acid, 6-ethyl-3-octyl ester	1000282-56-6	86
67.3632	0.1725	209	1,4-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester	6422-86-2	96
10.6739	0.1641	199	Oxalic acid, cyclohexyl pentyl ester	1000309-30-6	85
17.6068	0.1447	176	3-Octene, 2,2-dimethyl-	86869-76-3	87
10.0019	0.1133	138	2-Thiophenecarboxylic acid, 4-nitrophenyl ester	1000308-06-7	85
10.7883	0.1123	136	5-Isopropyl-3,3-dimethyl-2-methylene-2,3-dihydrofuran	81250-44-4	84
11.1194	0.1045	127	Ether, tert-butyl isopropylidenecyclopropyl	24524-56-9	84

Concentration estimated using the response for Anthracene-d10

CHAIN OF CUSTODY

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

Chain of Custody Record

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arada, Rachelle	Carrier Tracking No(s):	COC No: 380-122903.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Rachelle.Arada@et.eurofinsus.com	State of Origin: Hawaii	Page: Page 1 of 1
Company: Physis Environmental Laboratories		Accreditations Required (See note): State - Hawaii		Job #: 380-93697-1
Address: 1904 Wright Circle, ,	Due Date Requested: 5/20/2024			
City: Anaheim	TAT Requested (days):			
State, Zip: CA, 92806				
Phone:	PO #:			
Email:	WO #:			
Project Name: RED-HILL	Project #: 38001111			
Site: Honolulu BWS Sites	SSOW#:			

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUB (625 PAH Physis LL (EAL) + TICs)/ 625 PAH Physis LL (EAL) + TICs	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MOANALUA WELLS (380-93697-1)	4/29/24	10:15 Hawaiian		Water			X	2	See Attached Instructions
AIEA GULCH WELLS PUMP 2 (380-93697-2)	4/29/24	11:03 Hawaiian		Water			X	2	See Attached Instructions
AIEA WELLS PUMPS 1&2 (260) P2 (380-93697-3)	4/29/24	11:25 Hawaiian		Water			X	2	See Attached Instructions
HALAWA WELLS UNITS 1 & 2 P1 (380-93697-4)	4/29/24	10:37 Hawaiian		Water			X	2	See Attached Instructions

Preservation Codes: -

Other:

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

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	5/2/24 1217	GEL		5/2/24 1217	PH/KS
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

6/11/2024

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PHYSIS
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

Project Iteration ID: 1407003-508
Client Name: Eurofins Eaton Analytical
Project Name: RED HILL PO# 38001111 JOB # 380-93697-1
COC Page Number: 2 of 2
Bottle Label Color: NA

Sample Receipt Summary

Receiving Info

1. Initials Received By: CL
2. Date Received: 5/2/2024
3. Time Received: 1217
4. Client Name: Eurofins
5. Courier Information: (Please circle)
   - Client
   - UPS
   - Area Fast
   - DRS
   - FedEx
   - GSO/GLS
   - Ontrac
   - PAMS
   - PHYSIS Driver:
     i. Start Time:_____
     ii. End Time:_____
     iii. Total Mileage: _____
     iv. Number of Pickups:_____
6. Container Information: (Please put the # of containers or circle none)
   - 1 Cooler
   - __ Styrofoam Cooler
   - ____ Boxes
   - None
   - ___ Carboy(s)
   - __Carboy Trash Can(s)
   - ____ Carboy Cap(s)
   - Other _____
7. What type of ice was used: (Please circle any that apply)
   - Wet Ice
   - Blue Ice
   - Dry Ice
   - Water
   - None
8. Randomly Selected Samples Temperature (°C): 0.8 Used I/R Thermometer # 1-2

Inspection Info

1. Initials Inspected By: CL

Sample Integrity Upon Receipt:

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

Notes:

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

Chain of Custody Record

Refer to J 93702 for these sites' 525.2 & PFAS samples

eurofins

Client Information	Sampler: Bailey	Lab PM: Arada, Rachelle	Carrier Tracking No(s):	COC No: 380-27984-2757 2
Client Contact: Dr Ron Fenstermacher	Phone: 808-748-5840	E-Mail: Rachelle.Arada@et.eurofinsus.com	State of Origin:	Page: Page 1 of 3
Company: City & County of Honolulu	PWSID:	Analysis Requested		Job #:
Address: 630 South Beretania Street Chemistry Lab	Due Date Requested:			Preservation Codes: A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - 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:
City: Honolulu	TAT Requested (days):			
State, Zip: HI, 96843	Compliance Project: Δ No			
Phone: 808-748-5091 (tel)	PO #: C20525101 exp 05312023			
Email: rfenstemacher@hbws.org	WO #:			
Project Name: RED-HILL/HBWS sites Event Desc. RUSH Weekly Red Hill	Project #: 38001111			
Site:	SSOW#:			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUBCONTRACT - 625 PAH Physis LL (EAL) + TICs	8015B_GRO_LL - (MOD) GRO	8015B_DRO_LL_CS - HNL Ranges C10-C24/C24-C36/C8-C18	525.2_PREC - (MOD) 525plus PLUS TICs	537.1_DW_PREC - 537.1 Full List	533 All Analytes	Total Number of containers	Special Instructions/Note:
			Preservation Code				R	A	Q		Y	N		
MOANALUA WELLS	29-Apr-2024	1015	G	Water			2	4	2	2				chlorinated
AIEA GULCH WELLS PUMP2	29-Apr-2024	1103	G	Water			2	4	2	2				chlorinated
AIEA WELLS PUMPS 1&2 (260) P2	29-Apr-2024	1125	G	Water			2	4	2	2				
HALAWA WELLS UNITS 1&2 P1	29-Apr-2024	1037	G	Water			2	4	2	2				
TB MOANALUA WELLS	29-Apr-2024	1015		Water				2						
TB AIEA GULCH WELLS PUMP2	29-Apr-2024	1103		Water				2						
TB AIEA WELLS PUMPS 1&2 (260)	29-Apr-2024	1125		Water				2						
TB HALAWA WELLS UNITS 1&2	29-Apr-2024	1037		Water				2						

380-93697 COC

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

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

Special Instructions/QC Requirements

Empty Kit Relinquished by: | Date: | Time: | Method of Shipment: FED EX ① 7761 7950 1000 ② 7761 7950 1011

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
[redacted]	30 Apr 2024 1400	HBWS	G. REITNER	05/01/2024 09:31	EEAP

Custody Seals Intact: Δ Yes Δ No | Custody Seal No:

Cooler Temperature(s) °C and Other Remarks: (751A) ① 0.5° - 0.1° = 0.4° ② 3.3° - 0.1° = 3.2° BLUE FROZEN

Ver: 01/16/2019

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

Chain of Custody Record

eurofins | Environment Testing

Loc: 380
93697

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arada, Rachelle	Carrier Tracking No(s):	COC No: 380-122893.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Rachelle.Arada@et.eurofinsus.com	State of Origin: Hawaii	Page: Page 1 of 1
Company: Eurofins Environment Testing Southwest,		Accreditations Required (See note): State - Hawaii		Job #: 380-93697-1
Address: 2841 Dow Avenue, Suite 100, ,	Due Date Requested: 5/21/2024	Analysis Requested		Preservation Codes: -
City: Tustin	TAT Requested (days):			
State, Zip: CA, 92780				
Phone: 714-895-5494(Tel)	PO #:			
Email:	WO #:			
Project Name: RED-HILL	Project #: 38001111			
Site: Honolulu BWS Sites	SSOW#:			Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8015B_DRO_LL_CS/3510C_LL HNL Ranges: C10-C24/C24-C36/C8-C18	8015B_GRO_LL/5030C (MOD) GRO	8015B_GRO_LL/5030C GRO	380-93697 Chain of Custody	Total Number of containers	Special Instructions/Note:
			Preservation Code:									
MOANALUA WELLS (380-93697-1)	4/29/24	10:15 Hawaiian		Water			X	X			6	initial volume (500ml) and final volume (2ml). MRLs are needed.
AIEA GULCH WELLS PUMP 2 (380-93697-2)	4/29/24	11:03 Hawaiian		Water			X	X			6	initial volume (500ml) and final volume (2ml). MRLs are needed.
AIEA WELLS PUMPS 1&2 (260) P2 (380-93697-3)	4/29/24	11:25 Hawaiian		Water			X	X			6	initial volume (500ml) and final volume (2ml). MRLs are needed.
HALAWA WELLS UNITS 1 & 2 P1 (380-93697-4)	4/29/24	10:37 Hawaiian		Water			X	X			6	initial volume (500ml) and final volume (2ml). MRLs are needed.
TB MOANALUA WELLS (380-93697-5)	4/29/24	10:15 Hawaiian		Water					X		2	MRLs are needed.
TB AIEA GULCH WELLS PUMP 2 (380-93697-6)	4/29/24	11:03 Hawaiian		Water					X		2	MRLs are needed.
TB AIEA WELLS PUMPS 1&2 (260) P2 (380-93697-7)	4/29/24	11:25 Hawaiian		Water					X		2	MRLs are needed.
TB HALAWA WELLS UNITS 1 & 2 P1 (380-93697-8)	4/29/24	10:37 Hawaiian		Water					X		2	MRLs are needed.

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

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* ____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	5/2/24 1330	[illegible]	[signature]	5-2-24 13:30	EC
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1.9/2.0 SCIC

Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-93697-1
SDG Number: 625, 8015

Login Number: 93697
List Number: 1
Creator: Elyas, Matthew

List Source: Eurofins Eaton Analytical Pomona

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

Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-93697-1
SDG Number: 625, 8015

Login Number: 93697
List Number: 2
Creator: Khana, Piyush

List Source: Eurofins Calscience
List Creation: 05/02/24 06:49 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	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	2.0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	