



ANALYTICAL REPORT

PREPARED FOR

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JOB DESCRIPTION

HRS-340E - RED-HILL - INTERA

JOB NUMBER

380-88387-1

Eurofins Eaton Analytical Pomona

Job Notes

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

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

Compliance Statement

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

Authorization



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Definitions/Glossary

Client: City & County of Honolulu
Project/Site: HRS-340E - RED-HILL - INTERA

Job ID: 380-88387-1

Glossary

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

Case Narrative

Client: City & County of Honolulu
Project: HRS-340E - RED-HILL - INTERA

Job ID: 380-88387-1

Job ID: 380-88387-1

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Job Narrative 380-88387-1

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 sample was received on 2/1/2024 11:25 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice.

Subcontract Work

Method 625 - PAH Only: 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.

Detection Summary

Client: City & County of Honolulu
Project/Site: HRS-340E - RED-HILL - INTERA

Job ID: 380-88387-1

Client Sample ID: BWS2253-J1-AQ

Lab Sample ID: 380-88387-1

No Detections.

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This Detection Summary does not include radiochemical test results.

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Client Sample Results

Client: City & County of Honolulu
 Project/Site: HRS-340E - RED-HILL - INTERA

Job ID: 380-88387-1

Client Sample ID: BWS2253-J1-AQ

Lab Sample ID: 380-88387-1

Date Collected: 01/31/24 10:45

Matrix: Water

Date Received: 02/01/24 11:25

Method: 625 - PAH Only - EPA 625 Base/Neutral and Acid Organics i

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/14/24 10:03	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/14/24 10:03	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/14/24 10:03	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/14/24 10:03	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/14/24 10:03	1
Acenaphthene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/14/24 10:03	1
Acenaphthylene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/14/24 10:03	1
Anthracene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/14/24 10:03	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/14/24 10:03	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/14/24 10:03	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/14/24 10:03	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/14/24 10:03	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/14/24 10:03	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/14/24 10:03	1
Biphenyl	ND		0.005	0.001	µg/L		02/06/24 00:00	03/14/24 10:03	1
Chrysene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/14/24 10:03	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/14/24 10:03	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/14/24 10:03	1
Dibenzothiophene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/14/24 10:03	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		02/06/24 00:00	03/14/24 10:03	1
Fluoranthene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/14/24 10:03	1
Fluorene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/14/24 10:03	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/14/24 10:03	1
Naphthalene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/14/24 10:03	1
Perylene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/14/24 10:03	1
Phenanthrene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/14/24 10:03	1
Pyrene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/14/24 10:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	107		27 - 133	02/06/24 00:00	03/14/24 10:03	1
(d10-Phenanthrene)	109		43 - 129	02/06/24 00:00	03/14/24 10:03	1
(d12-Chrysene)	54		52 - 144	02/06/24 00:00	03/14/24 10:03	1
(d12-Perylene)	151		36 - 161	02/06/24 00:00	03/14/24 10:03	1
(d8-Naphthalene)	91		25 - 125	02/06/24 00:00	03/14/24 10:03	1

Surrogate Summary

Client: City & County of Honolulu
Project/Site: HRS-340E - RED-HILL - INTERA

Job ID: 380-88387-1

Method: 625 - PAH Only - EPA 625 Base/Neutral and Acid Organics i

Matrix: BlankMatrix

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Acenaphtl (27-133)	Phenanth (43-129)	CRY (52-144)	NPT (25-125)	PRY (36-161)
115189-B1	Method Blank	130	119	69	98	159
115189-BS1	Lab Control Sample	114	129	107	86	152
115189-BS2	Lab Control Sample Dup	114	124	91	91	155

Surrogate Legend

(d10-Acenaphthene) = (d10-Acenaphthene)

(d10-Phenanthrene) = (d10-Phenanthrene)

CRY = (d12-Chrysene)

NPT = (d8-Naphthalene)

PRY = (d12-Perylene)

Method: 625 - PAH Only - EPA 625 Base/Neutral and Acid Organics i

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Acenaphtl (27-133)	Phenanth (43-129)	CRY (52-144)	NPT (25-125)	PRY (36-161)
380-88387-1	BWS2253-J1-AQ	107	109	54	91	151

Surrogate Legend

(d10-Acenaphthene) = (d10-Acenaphthene)

(d10-Phenanthrene) = (d10-Phenanthrene)

CRY = (d12-Chrysene)

NPT = (d8-Naphthalene)

PRY = (d12-Perylene)

QC Sample Results

Client: City & County of Honolulu
 Project/Site: HRS-340E - RED-HILL - INTERA

Job ID: 380-88387-1

Method: 625 - PAH Only - EPA 625 Base/Neutral and Acid Organics i

Lab Sample ID: 115189-B1
Matrix: BlankMatrix
Analysis Batch: O-44102

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

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
Acenaphthene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
Acenaphthylene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
Anthracene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
Biphenyl	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
Chrysene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
Dibenzothiophene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		02/06/24 00:00	03/12/24 20:21	1
Fluoranthene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
Fluorene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
Naphthalene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
Perylene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
Phenanthrene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1
Pyrene	ND		0.005	0.001	µg/L		02/06/24 00:00	03/12/24 20:21	1

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

Lab Sample ID: 115189-BS1
Matrix: BlankMatrix
Analysis Batch: O-44102

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1-Methylnaphthalene	0.5	0.488		µg/L		98	31 - 128
1-Methylphenanthrene	0.5	0.432		µg/L		86	66 - 127
2,3,5-Trimethylnaphthalene	0.5	0.488		µg/L		98	55 - 122
2,6-Dimethylnaphthalene	0.5	0.457		µg/L		91	48 - 120
2-Methylnaphthalene	1.5	1.36		µg/L		91	47 - 130
Acenaphthene	1.5	1.56		µg/L		104	53 - 131
Acenaphthylene	1.5	1.62		µg/L		108	43 - 140
Anthracene	1.5	1.46		µg/L		97	58 - 135

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QC Sample Results

Client: City & County of Honolulu
 Project/Site: HRS-340E - RED-HILL - INTERA

Job ID: 380-88387-1

Method: 625 - PAH Only - EPA 625 Base/Neutral and Acid Organics i (Continued)

Lab Sample ID: 115189-BS1
Matrix: BlankMatrix
Analysis Batch: O-44102

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benz[a]anthracene	0.5	0.528		µg/L		106	55 - 145
Benzo[a]pyrene	1.5	1.67		µg/L		111	51 - 143
Benzo[b]fluoranthene	0.5	0.295		µg/L		59	46 - 165
Benzo[e]pyrene	0.5	0.409		µg/L		82	42 - 152
Benzo[g,h,i]perylene	1.5	1.39		µg/L		93	63 - 133
Benzo[k]fluoranthene	0.5	0.675		µg/L		135	56 - 145
Biphenyl	0.5	0.506		µg/L		101	56 - 119
Chrysene	1.5	0.988		µg/L		66	56 - 141
Dibenz[a,h]anthracene	0.5	0.615		µg/L		123	55 - 150
Dibenzo[a,l]pyrene	0.5	0.496		µg/L		99	50 - 150
Dibenzothiophene	0.5	0.541		µg/L		108	46 - 126
Disalicylidenepropanediamine	50	25.2		µg/L		50	50 - 150
Fluoranthene	1.5	1.58		µg/L		105	60 - 146
Fluorene	1.5	1.93		µg/L		129	58 - 131
Indeno[1,2,3-cd]pyrene	1.5	1.17		µg/L		78	50 - 151
Naphthalene	1.5	1.41		µg/L		94	41 - 126
Perylene	0.5	0.705		µg/L		141	48 - 141
Phenanthrene	1.5	1.83		µg/L		122	67 - 127
Pyrene	1.5	1.48		µg/L		99	54 - 156

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

Lab Sample ID: 115189-BS2
Matrix: BlankMatrix
Analysis Batch: O-44102

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

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

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QC Sample Results

Client: City & County of Honolulu
 Project/Site: HRS-340E - RED-HILL - INTERA

Job ID: 380-88387-1

Method: 625 - PAH Only - EPA 625 Base/Neutral and Acid Organics i (Continued)

Lab Sample ID: 115189-BS2
Matrix: BlankMatrix
Analysis Batch: O-44102

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

Analyte	Spike Added	LCS DUP Result	LCS DUP Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD
									Limit
Dibenz[a,h]anthracene	0.5	0.596		µg/L		119	55 - 150	3	30
Dibenzo[a,l]pyrene	0.5	0.561		µg/L		112	50 - 150	12	30
Dibenzothiophene	0.5	0.522		µg/L		104	46 - 126	4	30
Disalicylidenepropanediamine	50	27.2		µg/L		54	50 - 150	8	30
Fluoranthene	1.5	1.47		µg/L		98	60 - 146	7	30
Fluorene	1.5	1.9		µg/L		127	58 - 131	2	30
Indeno[1,2,3-cd]pyrene	1.5	1.19		µg/L		79	50 - 151	1	30
Naphthalene	1.5	1.48		µg/L		99	41 - 126	5	30
Perylene	0.5	0.698		µg/L		140	48 - 141	1	30
Phenanthrene	1.5	1.75		µg/L		117	67 - 127	4	30
Pyrene	1.5	1.36		µg/L		91	54 - 156	8	30

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

QC Association Summary

Client: City & County of Honolulu
Project/Site: HRS-340E - RED-HILL - INTERA

Job ID: 380-88387-1

Subcontract

Analysis Batch: O-44102

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-88387-1	BWS2253-J1-AQ	Total/NA	Water	625 - PAH Only	O-44102_P
115189-B1	Method Blank	Total/NA	BlankMatrix	625 - PAH Only	O-44102_P
115189-BS1	Lab Control Sample	Total/NA	BlankMatrix	625 - PAH Only	O-44102_P
115189-BS2	Lab Control Sample Dup	Total/NA	BlankMatrix	625 - PAH Only	O-44102_P

Prep Batch: O-44102_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-88387-1	BWS2253-J1-AQ	Total/NA	Water	EPA_625	
115189-B1	Method Blank	Total/NA	BlankMatrix	EPA_625	
115189-BS1	Lab Control Sample	Total/NA	BlankMatrix	EPA_625	
115189-BS2	Lab Control Sample Dup	Total/NA	BlankMatrix	EPA_625	

Lab Chronicle

Client: City & County of Honolulu
Project/Site: HRS-340E - RED-HILL - INTERA

Job ID: 380-88387-1

Client Sample ID: BWS2253-J1-AQ

Lab Sample ID: 380-88387-1

Date Collected: 01/31/24 10:45

Matrix: Water

Date Received: 02/01/24 11:25

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Analyst</u>	<u>Lab</u>	<u>Prepared or Analyzed</u>
Total/NA	Prep	EPA_625		1	O-44102_P			02/06/24 00:00
Total/NA	Analysis	625 - PAH Only		1	O-44102	YC		03/14/24 10:03

Laboratory References:

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

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Method Summary

Client: City & County of Honolulu
Project/Site: HRS-340E - RED-HILL - INTERA

Job ID: 380-88387-1

Method	Method Description	Protocol	Laboratory
625	EPA 625 Base/Neutral and Acid Organics i	EPA	

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

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



Sample Summary

Client: City & County of Honolulu
Project/Site: HRS-340E - RED-HILL - INTERA

Job ID: 380-88387-1

<u>Lab Sample ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Collected</u>	<u>Received</u>
380-88387-1	BWS2253-J1-AQ	Water	01/31/24 10:45	02/01/24 11:25

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March 26, 2024

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

Project Name: HRS-340E - RED-HILL - INTERA Project # 38002227 Job #
 Physis Project ID: 1407003-485

Dear Rachelle,

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

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

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

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

Regards,

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



PROJECT SAMPLE LIST

Eurofins Eaton Analytical

PHYSIS Project ID: 1407003-485

HRS-340E - RED-HILL - INTERA Project # 38002227 Job #

Total Samples: 1

PHYSIS ID	Sample ID	Description	Date	Time	Matrix	Sample Type
115190	BWS2253-J1-AQ (380-88387-1)		1/31/2024	10:45	Samplewater	Not Specified

ABBREVIATIONS and ACRONYMS

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

QUALITY ASSURANCE SUMMARY

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

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

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

PRECISION: Precision is the agreement among a set of replicate measurements without assumption of knowledge of the true value and is based on RPD calculations between repeated values. Precision of the project data was determined by analysis of replicate MS₁/MS₂, BS₁/BS₂, LCS₁/LCS₂, LCM₁/LCM₂, CRM₁/CRM₂, surrogate spikes and/or replicate project sample analysis (R₁/R₂) on a minimum frequency of one per batch. Physis' QM requires that for 95% of the compounds greater than 10 times the MDL, the percent RPD should be within the specified acceptance range.

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

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

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

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

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

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

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

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

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

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

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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

CASE NARRATIVE

QUALIFIER NOTES

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

ND

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

ANALYTICAL REPORT

TERRA AURA ENVIRONMENTAL LABORATORIES, INC.

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Base/Neutral Extractable Compounds

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Sample ID: 115190-R1	BWS2253-J1-AQ (380-88387-1)		Matrix: Samplewater				Sampled:	31-Jan-24 10:45		Received:	01-Feb-24
Disalicylidenepropanediamine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-44102	06-Feb-24	14-Mar-24



Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Sample ID: 115190-R1	BWS2253-J1-AQ (380-88387-1)	Matrix: Samplewater					Sampled:	31-Jan-24 10:45		Received:	01-Feb-24
(d10-Acenaphthene)	EPA 625.1	% Recovery	107	1			Total		O-44102	06-Feb-24	14-Mar-24
(d10-Phenanthrene)	EPA 625.1	% Recovery	109	1			Total		O-44102	06-Feb-24	14-Mar-24
(d12-Chrysene)	EPA 625.1	% Recovery	54	1			Total		O-44102	06-Feb-24	14-Mar-24
(d12-Perylene)	EPA 625.1	% Recovery	151	1			Total		O-44102	06-Feb-24	14-Mar-24
(d8-Naphthalene)	EPA 625.1	% Recovery	91	1			Total		O-44102	06-Feb-24	14-Mar-24
1-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	06-Feb-24	14-Mar-24
1-Methylphenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	06-Feb-24	14-Mar-24
2,3,5-Trimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	06-Feb-24	14-Mar-24
2,6-Dimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	06-Feb-24	14-Mar-24
2-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	06-Feb-24	14-Mar-24
Acenaphthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	06-Feb-24	14-Mar-24
Acenaphthylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	06-Feb-24	14-Mar-24
Anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	06-Feb-24	14-Mar-24
Benz[a]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	06-Feb-24	14-Mar-24
Benzo[a]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	06-Feb-24	14-Mar-24
Benzo[b]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	06-Feb-24	14-Mar-24
Benzo[e]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	06-Feb-24	14-Mar-24
Benzo[g,h,i]perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	06-Feb-24	14-Mar-24
Benzo[k]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	06-Feb-24	14-Mar-24
Biphenyl	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	06-Feb-24	14-Mar-24
Chrysene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	06-Feb-24	14-Mar-24
Dibenz[a,h]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	06-Feb-24	14-Mar-24
Dibenzo[a,l]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	06-Feb-24	14-Mar-24
Dibenzothiophene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	06-Feb-24	14-Mar-24

Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	06-Feb-24	14-Mar-24
Fluorene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	06-Feb-24	14-Mar-24
Indeno[1,2,3-cd]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	06-Feb-24	14-Mar-24
Naphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	06-Feb-24	14-Mar-24
Perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	06-Feb-24	14-Mar-24
Phenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	06-Feb-24	14-Mar-24
Pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-44102	06-Feb-24	14-Mar-24



QUALITY CONTROL REPORT

TERRA ENVIRONMENTAL LABORATORIES, INC. AURA

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Base/Neutral Extractable Compounds

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE		SOURCE		ACCURACY		PRECISION		QA CODEc
							LEVEL	RESULT	%	LIMITS	%	LIMITS			
Sample ID: 115189-B1		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:				Received:			
		Method: EPA 625.1			Batch ID: O-44102			Prepared: 06-Feb-24				Analyzed: 12-Mar-24			
Disalicylidenepranediamin	Total	ND	1	0.05	0.1	µg/L									
Sample ID: 115189-BS1		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:				Received:			
		Method: EPA 625.1			Batch ID: O-44102			Prepared: 06-Feb-24				Analyzed: 13-Mar-24			
Disalicylidenepranediamin	Total	25.2	1	0.05	0.1	µg/L	50	0	50	50 - 150%	PASS				
Sample ID: 115189-BS2		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:				Received:			
		Method: EPA 625.1			Batch ID: O-44102			Prepared: 06-Feb-24				Analyzed: 13-Mar-24			
Disalicylidenepranediamin	Total	27.2	1	0.05	0.1	µg/L	50	0	54	50 - 150%	PASS	8	30	PASS	



Polynuclear Aromatic Hydrocarbons

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY	PRECISION	QA CODEc
							LEVEL	RESULT	% LIMITS	% LIMITS	
Sample ID: 115189-B1		QAQC Procedural Blank			Matrix: BlankMatrix		Sampled:		Received:		
		Method: EPA 625.1				Batch ID: O-44102	Prepared: 06-Feb-24		Analyzed: 12-Mar-24		
(d10-Acenaphthene)	Total	130	1			% Recovery	100	130	27 - 133%	PASS	
(d10-Phenanthrene)	Total	119	1			% Recovery	100	119	43 - 129%	PASS	
(d12-Chrysene)	Total	69	1			% Recovery	100	69	52 - 144%	PASS	
(d12-Perylene)	Total	159	1			% Recovery	100	159	36 - 161%	PASS	
(d8-Naphthalene)	Total	98	1			% Recovery	100	98	25 - 125%	PASS	
1-Methylnaphthalene	Total	ND	1	0.001	0.005						µg/L
1-Methylphenanthrene	Total	ND	1	0.001	0.005						µg/L
2,3,5-Trimethylnaphthalene	Total	ND	1	0.001	0.005						µg/L
2,6-Dimethylnaphthalene	Total	ND	1	0.001	0.005						µg/L
2-Methylnaphthalene	Total	ND	1	0.001	0.005						µg/L
Acenaphthene	Total	ND	1	0.001	0.005						µg/L
Acenaphthylene	Total	ND	1	0.001	0.005						µg/L
Anthracene	Total	ND	1	0.001	0.005						µg/L
Benz[a]anthracene	Total	ND	1	0.001	0.005						µg/L
Benzo[a]pyrene	Total	ND	1	0.001	0.005						µg/L
Benzo[b]fluoranthene	Total	ND	1	0.001	0.005						µg/L
Benzo[e]pyrene	Total	ND	1	0.001	0.005						µg/L
Benzo[g,h,i]perylene	Total	ND	1	0.001	0.005						µg/L
Benzo[k]fluoranthene	Total	ND	1	0.001	0.005						µg/L
Biphenyl	Total	ND	1	0.001	0.005						µg/L
Chrysene	Total	ND	1	0.001	0.005						µg/L
Dibenz[a,h]anthracene	Total	ND	1	0.001	0.005						µg/L
Dibenzo[a,l]pyrene	Total	ND	1	0.001	0.005						µg/L

Polynuclear Aromatic Hydrocarbons

QUALITY CONTROL REPORT

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



Polynuclear Aromatic Hydrocarbons

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY		PRECISION	QA CODEC
							LEVEL	RESULT	%	LIMITS	%	LIMITS
Sample ID: 115189-BS1		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:		Received:		
Method: EPA 625.1		Batch ID: O-44102			Prepared: 06-Feb-24		Analyzed: 13-Mar-24					
(d10-Acenaphthene)	Total	114	1			% Recovery	100	0	114	27 - 133%	PASS	
(d10-Phenanthrene)	Total	129	1			% Recovery	100	0	129	43 - 129%	PASS	
(d12-Chrysene)	Total	107	1			% Recovery	100	0	107	52 - 144%	PASS	
(d12-Perylene)	Total	152	1			% Recovery	100	0	152	36 - 161%	PASS	
(d8-Naphthalene)	Total	86	1			% Recovery	100	0	86	25 - 125%	PASS	
1-Methylnaphthalene	Total	0.488	1	0.001	0.005	µg/L	0.5	0	98	31 - 128%	PASS	
1-Methylphenanthrene	Total	0.432	1	0.001	0.005	µg/L	0.5	0	86	66 - 127%	PASS	
2,3,5-Trimethylnaphthalene	Total	0.488	1	0.001	0.005	µg/L	0.5	0	98	55 - 122%	PASS	
2,6-Dimethylnaphthalene	Total	0.457	1	0.001	0.005	µg/L	0.5	0	91	48 - 120%	PASS	
2-Methylnaphthalene	Total	1.36	1	0.001	0.005	µg/L	1.5	0	91	47 - 130%	PASS	
Acenaphthene	Total	1.56	1	0.001	0.005	µg/L	1.5	0	104	53 - 131%	PASS	
Acenaphthylene	Total	1.62	1	0.001	0.005	µg/L	1.5	0	108	43 - 140%	PASS	
Anthracene	Total	1.46	1	0.001	0.005	µg/L	1.5	0	97	58 - 135%	PASS	
Benz[a]anthracene	Total	0.528	1	0.001	0.005	µg/L	0.5	0	106	55 - 145%	PASS	
Benzo[a]pyrene	Total	1.67	1	0.001	0.005	µg/L	1.5	0	111	51 - 143%	PASS	
Benzo[b]fluoranthene	Total	0.295	1	0.001	0.005	µg/L	0.5	0	59	46 - 165%	PASS	
Benzo[e]pyrene	Total	0.409	1	0.001	0.005	µg/L	0.5	0	82	42 - 152%	PASS	
Benzo[g,h,i]perylene	Total	1.39	1	0.001	0.005	µg/L	1.5	0	93	63 - 133%	PASS	
Benzo[k]fluoranthene	Total	0.675	1	0.001	0.005	µg/L	0.5	0	135	56 - 145%	PASS	
Biphenyl	Total	0.506	1	0.001	0.005	µg/L	0.5	0	101	56 - 119%	PASS	
Chrysene	Total	0.988	1	0.001	0.005	µg/L	1.5	0	66	56 - 141%	PASS	
Dibenz[a,h]anthracene	Total	0.615	1	0.001	0.005	µg/L	0.5	0	123	55 - 150%	PASS	
Dibenzo[a,l]pyrene	Total	0.496	1	0.001	0.005	µg/L	0.5	0	99	50 - 150%	PASS	

Polynuclear Aromatic Hydrocarbons

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY		PRECISION		QA CODEc
							LEVEL	RESULT	%	LIMITS	%	LIMITS	
Dibenzothiophene	Total	0.541	1	0.001	0.005	µg/L	0.5	0	108	46 - 126%	PASS		
Fluoranthene	Total	1.58	1	0.001	0.005	µg/L	1.5	0	105	60 - 146%	PASS		
Fluorene	Total	1.93	1	0.001	0.005	µg/L	1.5	0	129	58 - 131%	PASS		
Indeno[1,2,3-cd]pyrene	Total	1.17	1	0.001	0.005	µg/L	1.5	0	78	50 - 151%	PASS		
Naphthalene	Total	1.41	1	0.001	0.005	µg/L	1.5	0	94	41 - 126%	PASS		
Perylene	Total	0.705	1	0.001	0.005	µg/L	0.5	0	141	48 - 141%	PASS		
Phenanthrene	Total	1.83	1	0.001	0.005	µg/L	1.5	0	122	67 - 127%	PASS		
Pyrene	Total	1.48	1	0.001	0.005	µg/L	1.5	0	99	54 - 156%	PASS		



Polynuclear Aromatic Hydrocarbons

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY		PRECISION		QA CODEc	
							LEVEL	RESULT	%	LIMITS	%	LIMITS		
Sample ID: 115189-BS2		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:			Received:			
		Method: EPA 625.1			Batch ID: O-44102			Prepared: 06-Feb-24			Analyzed: 13-Mar-24			
(d10-Acenaphthene)	Total	114	1			% Recovery	100	0	114	27 - 133%	PASS	0	30	PASS
(d10-Phenanthrene)	Total	124	1			% Recovery	100	0	124	43 - 129%	PASS	5	30	PASS
(d12-Chrysene)	Total	91	1			% Recovery	100	0	91	52 - 144%	PASS	16	30	PASS
(d12-Perylene)	Total	155	1			% Recovery	100	0	155	36 - 161%	PASS	2	30	PASS
(d8-Naphthalene)	Total	91	1			% Recovery	100	0	91	25 - 125%	PASS	6	30	PASS
1-Methylnaphthalene	Total	0.554	1	0.001	0.005	µg/L	0.5	0	111	31 - 128%	PASS	12	30	PASS
1-Methylphenanthrene	Total	0.401	1	0.001	0.005	µg/L	0.5	0	80	66 - 127%	PASS	7	30	PASS
2,3,5-Trimethylnaphthalene	Total	0.463	1	0.001	0.005	µg/L	0.5	0	93	55 - 122%	PASS	5	30	PASS
2,6-Dimethylnaphthalene	Total	0.48	1	0.001	0.005	µg/L	0.5	0	96	48 - 120%	PASS	5	30	PASS
2-Methylnaphthalene	Total	1.42	1	0.001	0.005	µg/L	1.5	0	95	47 - 130%	PASS	4	30	PASS
Acenaphthene	Total	1.58	1	0.001	0.005	µg/L	1.5	0	105	53 - 131%	PASS	1	30	PASS
Acenaphthylene	Total	1.62	1	0.001	0.005	µg/L	1.5	0	108	43 - 140%	PASS	0	30	PASS
Anthracene	Total	1.4	1	0.001	0.005	µg/L	1.5	0	93	58 - 135%	PASS	4	30	PASS
Benz[a]anthracene	Total	0.483	1	0.001	0.005	µg/L	0.5	0	97	55 - 145%	PASS	9	30	PASS
Benzo[a]pyrene	Total	1.66	1	0.001	0.005	µg/L	1.5	0	111	51 - 143%	PASS	0	30	PASS
Benzo[b]fluoranthene	Total	0.279	1	0.001	0.005	µg/L	0.5	0	56	46 - 165%	PASS	5	30	PASS
Benzo[e]pyrene	Total	0.402	1	0.001	0.005	µg/L	0.5	0	80	42 - 152%	PASS	2	30	PASS
Benzo[g,h,i]perylene	Total	1.34	1	0.001	0.005	µg/L	1.5	0	89	63 - 133%	PASS	4	30	PASS
Benzo[k]fluoranthene	Total	0.611	1	0.001	0.005	µg/L	0.5	0	122	56 - 145%	PASS	11	30	PASS
Biphenyl	Total	0.532	1	0.001	0.005	µg/L	0.5	0	106	56 - 119%	PASS	5	30	PASS
Chrysene	Total	0.895	1	0.001	0.005	µg/L	1.5	0	60	56 - 141%	PASS	10	30	PASS
Dibenz[a,h]anthracene	Total	0.596	1	0.001	0.005	µg/L	0.5	0	119	55 - 150%	PASS	3	30	PASS
Dibenzo[a,l]pyrene	Total	0.561	1	0.001	0.005	µg/L	0.5	0	112	50 - 150%	PASS	12	30	PASS

Polynuclear Aromatic Hydrocarbons

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY		PRECISION		QA CODEc	
							LEVEL	RESULT	%	LIMITS	%	LIMITS		
Dibenzothiophene	Total	0.522	1	0.001	0.005	µg/L	0.5	0	104	46 - 126%	PASS	4	30	PASS
Fluoranthene	Total	1.47	1	0.001	0.005	µg/L	1.5	0	98	60 - 146%	PASS	7	30	PASS
Fluorene	Total	1.9	1	0.001	0.005	µg/L	1.5	0	127	58 - 131%	PASS	2	30	PASS
Indeno[1,2,3-cd]pyrene	Total	1.19	1	0.001	0.005	µg/L	1.5	0	79	50 - 151%	PASS	1	30	PASS
Naphthalene	Total	1.48	1	0.001	0.005	µg/L	1.5	0	99	41 - 126%	PASS	5	30	PASS
Perylene	Total	0.698	1	0.001	0.005	µg/L	0.5	0	140	48 - 141%	PASS	1	30	PASS
Phenanthrene	Total	1.75	1	0.001	0.005	µg/L	1.5	0	117	67 - 127%	PASS	4	30	PASS
Pyrene	Total	1.36	1	0.001	0.005	µg/L	1.5	0	91	54 - 156%	PASS	8	30	PASS

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PHYSIS

TENTATIVELY IDENTIFIED COMPOUNDS

ENVIRONMENTAL LABORATORIES, INC.

Innovative Solutions for Nature

Sample ID: 115190

Retention Time	Area (% of total)	Concentration (ng/L)	Library/ID	Cas Number	Match Quality (%)
35.1049	3.2751	1111	Anthracene-D10	1517-22-2	92
10.4512	135.7367	46050	Cyclohexane, 1-methyl-3-propyl-	4291-80-9	91
10.4512	127.7793	43351	2-Pyrazoline, 1-butyl-5-methyl-	22581-50-6	86
10.3917	63.4422	21524	Octane, 3-methyl-6-methylene-	74630-07-2	83
12.8149	55.8867	18960	Ethanol, 2-(hexyloxy)-	112-25-4	98
10.2095	27.4355	9308	2-Piperidinemetanamine	22990-77-8	83
10.2095	26.6342	9036	1H-Pyrazole, 4,5-dihydro-3-methyl-	1911-30-4	84
10.6329	17.8790	6066	3-Hexene-2,5-diol	7319-23-5	80
10.5045	8.7606	2972	Methoxyacetoneitrile	1738-36-9	81
10.0687	7.0153	2380	1H-1,2,3-Triazole-4-carboxaldehyde	16681-68-8	87
15.7727	5.9789	2028	Benzothiazole	95-16-9	88
10.3337	5.7923	1965	Thiophene, 3-methyl-	616-44-4	80
27.5620	4.4324	1504	Diethyl Phthalate	84-66-2	97
10.6060	3.2958	1118	Benzaldehyde	100-52-7	86
22.3320	2.4107	818	Dimethyl phthalate	131-11-3	94
11.4920	2.0302	689	1-Hexanol, 2-ethyl-	104-76-7	81
21.7216	1.7594	597	Ethanone, 1,1'-(1,4-phenylene)bis-	1009-61-6	88
34.4509	1.7148	582	3,5-di-tert-Butyl-4-hydroxybenzaldehyde	1620-98-0	95
16.9842	1.4769	501	Thymol	89-83-8	82
14.2938	1.0869	369	(-)-Neomenthyl acetate	146502-80-9	88
20.7783	0.9102	309	2,4,7,9-Tetramethyl-5-decyn-4,7-diol	126-86-3	87
22.9884	0.8957	304	2,5-Cyclohexadiene-1,4-dione, 2,6-bis(1,1-dimethylethyl)-	719-22-2	90
11.6598	0.8369	284	.alpha.-Thujenal	57129-54-1	89
10.7589	0.8185	278	5-Isopropyl-3,3-dimethyl-2-methylene-2,3-dihydrofuran	81250-44-4	81
12.2510	0.7243	246	Acetophenone	98-86-2	93
29.2110	0.7182	244	Benzophenone	119-61-9	95
11.0903	0.6542	222	2-tert-Butylcyclohexanone	1728-46-7	80
16.5269	0.5769	196	2-Furancarboxaldehyde, 5-bromo-	1899-24-7	83
11.0910	0.5099	173	4H-1,2,4-Triazol-3-amine, 4-methyl-	16681-76-8	80
12.5342	0.5001	170	.alpha.-Methylstyrene	98-83-9	87
16.5273	0.4939	168	Benzaldehyde, 2,5-difluoro-3,4-dihydroxy-	1000116-58-2	82
13.2316	0.4826	164	Pentanedioic acid, dimethyl ester	1119-40-0	85
14.7043	0.4392	149	3-Methylbenzoic acid, 2-formyl-4,6-dichlorophenyl ester	1010331-26-9	85
20.2747	0.4217	143	Phenol, 4-(1,1-dimethylpropyl)-	80-46-6	83
12.7270	0.4157	141	Benzoic acid, hydrazide	613-94-5	88
14.7052	0.3666	124	3-(4-Methylbenzoyl)-2-thioxo-4-thiazolyl 4-methylbenzoate	299929-13-8	81
10.9741	0.3154	107	2-Cyclopenten-1-one, 2-hydroxy-	10493-98-8	86
25.8890	0.3082	105	1,6-Dioxacyclododecane-7,12-dione	777-95-7	84

Concentration estimated using the response for Anthracene-d10

Sample ID: Lab Blank B1_44102

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

Concentration estimated using the response for Anthracene-d10

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PERFORMANCE CHAIN OF CUSTODY

TERRA ENVIRONMENTAL LABORATORIES, INC. AURA

Innovative Solutions for Nature

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Client Information		Sampler:	EVA KAKONE		Lab PM:	Arada, Rachelle		Carrier Tracking No(s):	HAWAII		COC No:	Page: 1 of 1	
Client Contact: Mr. Ervin Kawata		Phone:	(858) 205 0730		E-Mail:	Rachelle.Arada@eurofins.com		State of Origin:	HAWAII		Job #:		
Company: City & County of Honolulu		Address:	630 South Beretania Street Honolulu		TAT Requested (days):	STANDARD		Analysis Requested					
State, Zip: HI, 96843		Compliance Project:	Yes No		PO #:	C20525101 exp 05312023		SUBCONTRACT - 625 - PAH Only + TICs					
Phone: 808-748-5086(TE)		Project #:	38002227		SSOW#:			SUBCONTRACT - TPH 8015 Diesel and Motor Oil					
Email: ekawata@hbsw.org		Project #:	38002227		SSOW#:			SUBCONTRACT - TPH 8015 Jet Fuel 2					
Project Name: HRS-340E - RED-HILL - INTERA		Project #:	38002227		SSOW#:			SUBCONTRACT - TPH 8015 Jet Fuel 3					
Site: Site J		Project #:	38002227		SSOW#:			SUBCONTRACT - 8015 Gas					
		Project #:	38002227		SSOW#:			DEAS 553 - All Analytes					
		Project #:	38002227		SSOW#:			PFAS 537.1_DW_PREC 507.1 Puff List					
		Project #:	38002227		SSOW#:			PFAS 1633_D05_1633 Std List					
		Project #:	38002227		SSOW#:			8260B - (MOB) Super Volatiles List					
		Project #:	38002227		SSOW#:			Total Number of containers					
		Project #:	38002227		SSOW#:			Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amnolite H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA M - Hexane N - None O - AsH2O2 P - Na2SO4 Q - Na2S2O3 R - NaHSO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)					
		Project #:	38002227		SSOW#:			Special Instructions/Note: x = testing comes from another container.					
		Project #:	38002227		SSOW#:			Subcontract Notes: 625 PAH - Physis 8015-TPH-DTW - EEA POW/TUSIN 8015-Gas-EEA POW/Flexin 8260B - EEA POW/TUSIN PFAS 537.1 & 507 - EEA POW PFAS 1633 - EEA SAC - Bill and Report to EEA - Pomona					
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix (Water, Soil, Oil, etc.)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)						
BWMS253-J1-AQ		1/31/24	1045	G	Water								
BWMS253-J1-TB				G	Water								
BWMS253-J1-FB				G	Water								
Possible Hazard Identification		<input checked="" type="checkbox"/> Non-Hazard		<input type="checkbox"/> Flammable	<input type="checkbox"/> Skin Irritant	<input type="checkbox"/> Poison B	<input type="checkbox"/> Unknown	<input type="checkbox"/> Radiological					
Deliverable Requested: I, II, III, IV, Other (specify)													
Empty Kit Relinquished by:		Date:			Time:								
Relinquished by: <i>Erin Leake</i>		Date/Time:	1/31/24		1330	Company:	WETA						
Relinquished by:		Date/Time:				Company:	WETA						
Relinquished by:		Date/Time:				Company:	WETA						
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:				Cooler Temperature(s) °C and Other Remarks:							



Project Iteration ID: 1407003-485
 Client Name: Eurofins Eaton Analytical
 Project Name: HRS-340E - RED-HILL - INTERA
 Project # 38002227 Job #
 COC Page Number: 2 of 2
 Bottle Label Color: NA

Sample Receipt Summary

Receiving Info

1. Initials Received By: EP
2. Date Received: 2/1/24
3. Time Received: 11:25 am
4. Client Name: Eurofins Drinking Water
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)
 - 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 # _____

Inspection Info

1. Initials Inspected By: EP

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:

Chain of Custody Record



Client Information		Lab PM: Arada, Rachelle	
Client Contact: Mr. Erwin Kawata		E-Mail: Rachelle.Arada@et.eurofins.com	
Address: 630 South Beretania Street Honolulu State, Zip: HI, 96843		Carrier Tracking No(s): HAW411	
Phone: (858) 205 0730		Page 1 of 1	
City & County of Honolulu		Job #:	
Due Date Requested:		Preservation Codes:	
TAT Requested (days): STANDARD		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - PH 4-5 X - EDTA Y - Tizma Z - other (specify)	
Compliance Project: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Special Instructions/Note: x = testing comes from another container.	
PO #: C20525101 exp 05312023		Total Number of Containers	
WC #: 38002227		Subcontract Notes: 625 PAH - Physis	
Project #: HRS-340E - RED-HILL - INTERA		9845-PPHB-WT-EA POW/TUSIN	
Site: Site J		8845-Ges-EEA POW/Tusien	
Sample Identification		82608-EAT-POW/TUSIN	
Sample Date	Sample Time	Sample Type	Matrix
11/31/24	1045	G	Water
		G	Water
		G	Water
Field Filled Sample (Yes or No) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
SUBCONTRACT - TPH-8915 Diesel and Motor Oil		SUBCONTRACT - TPH-8915 Diesel and Motor Oil	
SUBCONTRACT - TPH-8916 Jet Fuel		SUBCONTRACT - TPH-8916 Jet Fuel	
SUBCONTRACT - Air Analyser		SUBCONTRACT - Air Analyser	
PPAS 537.4 BW PRE-537.1 PHT LIST		PPAS 537.4 BW PRE-537.1 PHT LIST	
PPAS 1035-1003-1033 SUT LIST		PPAS 1035-1003-1033 SUT LIST	
PPAS (MDD) Copper Vials List		PPAS (MDD) Copper Vials List	
380-88387 COC		380-88387 COC	
<input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify)			
Possible Hazard Identification		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	
<input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		<input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Special Instructions/QC Requirements:			
Empty Kit Relinquished by:		Method of Shipment: RED X PRIORITY OVERNIGHT	
Relinquished by: <i>Era Kaka</i>		Date/Time: 11/31/24; 1330	
Relinquished by: <i>Era Kaka</i>		Date/Time: 12/1/24 11:25 AM	
Relinquished by:		Date/Time:	
Company Intg-AAA INTEGRATED		Company	
Company		Company	
Company		Company	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Cooler Temperature(s) °C and Other Remarks:	



Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-88387-1

Login Number: 88387
List Number: 1
Creator: Ngo, Theodore

List Source: Eurofins Eaton Analytical Pomona

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

