eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Mr. Erwin Kawata
City & County of Honolulu
630 South Beretania Street
Public Service Bldg. Room 308
Honolulu, Hawaii 96843

Generated 12/16/2022 11:22:17 AM

JOB DESCRIPTION

RED-HILL
RUSH Weekly Red Hill

JOB NUMBER

380-25927-1

Eurofins Eaton Monrovia
750 Royal Oaks Drive
Suite 100
Monrovia CA 91016

See page two for job notes and contact information.

Job Notes

Laboratory certifies that the test results meet all TNI 2016 and ISO/IEC 17025:2017 requirements unless noted under the individual analysis.

Following the cover page are State Certification List, ISO 17025 Accredited Method List, Acknowledgement of Samples Received, Comments, Hits Report,Data Report, QC Summary, QC Report and Regulatory Forms, as applicable.

Test results relate only to the sample(s) tested.

Test results apply to the sample(s) as received, unless otherwise noted in the comments report (ISO/IEC 17025:2017).

This report shall not be reproduced except in full, without the written approval of the laboratory.

This report includes ISO/IEC 17025 and non-ISO 17025 accredited methods.

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

Rachelle Arada

Generated
12/16/2022 11:22:17 AM

Authorized for release by
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Table of Contents

Definitions/Glossary

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

Job ID: 380-25927-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
^3+	Reporting Limit Check Standard is outside acceptance limits, high biased
B	Analyte was found in the associated method blank.
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA TICs

Qualifier	Qualifier Description
J	Indicates an Estimated Value for TICs
N	Presumptive evidence of material.
T	Result is a tentatively identified compound (TIC) and an estimated value.

Subcontract

Qualifier	Qualifier Description
U	This analyte was not detected.

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 ID: 380-25927-1

Laboratory: Eurofins Eaton Monrovia

Narrative

Job Narrative
380-25927-1

Comments
No additional comments.

Receipt
The samples were received on 10/26/2022 10:00 AM. Unless otherwise noted below, the samples arrived in good condition, an where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.8º C.

Receipt Exceptions

The Chain-of-Custody (COC) was incomplete as received and/or improperly completed. City & County of Honolulu likely forgot indicate SUBCONTRACT - 8015 Diesel LL (EAL) and Motor Oil as a requested analysis. These containers were received and th method was logged in.

GC/MS Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Subcontract non-Sister
See attached subcontract report.

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

Subcontract Work
Methods 8015 Gas (Purgeable) LL (EAL), 8015 LL DRO/MRO/JP5/JP8: These methods were subcontracted to EMAX Laboratories Inc. The subcontract laboratory certifications are different from that of the facility issuing the final report.

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.

Detection Summary

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

Job ID: 380-25927-1

Client Sample ID: HALAWA SHAFT VIEWING POOL
PWSID Number: HI0000331

Lab Sample ID: 380-25927-1

No Detections.

Client Sample ID: TB HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-25927-2

No Detections.

This Detection Summary does not include radiochemical test results.

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

Job ID: 380-25927-1

Client Sample ID: HALAWA SHAFT VIEWING POOL
Date Collected: 10/24/22 09:30
Date Received: 10/26/22 10:00

Lab Sample ID: 380-25927-1
Matrix: Drinking Water
PWSID Number: HI0000331

Method: EPA 525.2 - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		0.10		ug/L		10/29/22 13:30	11/01/22 20:52	1
2,4'-DDE	ND		0.10		ug/L		10/29/22 13:30	11/01/22 20:52	1
2,4'-DDT	ND		0.10		ug/L		10/29/22 13:30	11/01/22 20:52	1
2,4-Dinitrotoluene	ND		0.10		ug/L		10/29/22 13:30	11/01/22 20:52	1
2,6-Dinitrotoluene	ND		0.10		ug/L		10/29/22 13:30	11/01/22 20:52	1
4,4'-DDD	ND		0.10		ug/L		10/29/22 13:30	11/01/22 20:52	1
4,4'-DDE	ND		0.10		ug/L		10/29/22 13:30	11/01/22 20:52	1
4,4'-DDT	ND		0.10		ug/L		10/29/22 13:30	11/01/22 20:52	1
Acenaphthene	ND		0.10		ug/L		10/29/22 13:30	11/01/22 20:52	1
Acenaphthylene	ND		0.10		ug/L		10/29/22 13:30	11/01/22 20:52	1
Acetochlor	ND		0.10		ug/L		10/29/22 13:30	11/01/22 20:52	1
Alachlor	ND		0.050		ug/L		10/29/22 13:30	11/01/22 20:52	1
alpha-BHC	ND		0.10		ug/L		10/29/22 13:30	11/01/22 20:52	1
alpha-Chlordane	ND		0.050		ug/L		10/29/22 13:30	11/01/22 20:52	1
Anthracene	ND		0.020		ug/L		10/29/22 13:30	11/01/22 20:52	1
Atrazine	ND		0.050		ug/L		10/29/22 13:30	11/01/22 20:52	1
Benz(a)anthracene	ND		0.050		ug/L		10/29/22 13:30	11/01/22 20:52	1
Benzo[a]pyrene	ND		0.020		ug/L		10/29/22 13:30	11/01/22 20:52	1
Benzo[b]fluoranthene	ND		0.020		ug/L		10/29/22 13:30	11/01/22 20:52	1
Benzo[g,h,i]perylene	ND		0.050		ug/L		10/29/22 13:30	11/01/22 20:52	1
Benzo[k]fluoranthene	ND		0.020		ug/L		10/29/22 13:30	11/01/22 20:52	1
beta-BHC	ND		0.10		ug/L		10/29/22 13:30	11/01/22 20:52	1
Bromacil	ND		0.10		ug/L		10/29/22 13:30	11/01/22 20:52	1
Butachlor	ND		0.050		ug/L		10/29/22 13:30	11/01/22 20:52	1
Butylbenzylphthalate	ND		0.50		ug/L		10/29/22 13:30	11/01/22 20:52	1
Caffeine	ND		0.050		ug/L		10/29/22 13:30	11/01/22 20:52	1
Chlorobenzilate	ND		0.10		ug/L		10/29/22 13:30	11/01/22 20:52	1
Chloroneb	ND		0.10		ug/L		10/29/22 13:30	11/01/22 20:52	1
Chlorothalonil (Draconil, Bravo)	ND		0.10		ug/L		10/29/22 13:30	11/01/22 20:52	1
Chlorpyrifos	ND		0.050		ug/L		10/29/22 13:30	11/01/22 20:52	1
Chrysene	ND		0.020		ug/L		10/29/22 13:30	11/01/22 20:52	1
delta-BHC	ND		0.10		ug/L		10/29/22 13:30	11/01/22 20:52	1
Di(2-ethylhexyl)adipate	ND	B ^3+	0.60		ug/L		10/29/22 13:30	11/01/22 20:52	1
Bis(2-ethylhexyl) phthalate	ND		0.60		ug/L		10/29/22 13:30	11/01/22 20:52	1
Diazinon (Qualitative)	ND		0.10		ug/L		10/29/22 13:30	11/01/22 20:52	1
Dibenz(a,h)anthracene	ND		0.050		ug/L		10/29/22 13:30	11/01/22 20:52	1
Diclorvos (DDVP)	ND		0.050		ug/L		10/29/22 13:30	11/01/22 20:52	1
Dieldrin	ND		0.20		ug/L		10/29/22 13:30	11/01/22 20:52	1
Diethylphthalate	ND		0.50		ug/L		10/29/22 13:30	11/01/22 20:52	1
Dimethoate	ND		0.10		ug/L		10/29/22 13:30	11/01/22 20:52	1
Dimethylphthalate	ND		0.50		ug/L		10/29/22 13:30	11/01/22 20:52	1
Di-n-butyl phthalate	ND		1.0		ug/L		10/29/22 13:30	11/01/22 20:52	1
Di-n-octyl phthalate	ND		0.10		ug/L		10/29/22 13:30	11/01/22 20:52	1
Endosulfan I (Alpha)	ND		0.10		ug/L		10/29/22 13:30	11/01/22 20:52	1
Endosulfan II (Beta)	ND		0.10		ug/L		10/29/22 13:30	11/01/22 20:52	1
Endosulfan sulfate	ND		0.10		ug/L		10/29/22 13:30	11/01/22 20:52	1
Endrin	ND		0.10		ug/L		10/29/22 13:30	11/01/22 20:52	1
Endrin aldehyde	ND		0.10		ug/L		10/29/22 13:30	11/01/22 20:52	1
EPTC	ND		0.10		ug/L		10/29/22 13:30	11/01/22 20:52	1

Client Sample ID: HALAWA SHAFT VIEWING POOL

Date Collected: 10/24/22 09:30
Date Received: 10/26/22 10:00

Lab Sample ID: 380-25927-1

Matrix: Drinking Water
PWSID Number: HI0000331

Method: EPA 525.2 - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Fluoranthene	ND		0.10		ug/L		10/29/22 13:30	11/01/22 20:52	1
Fluorene	ND		0.050		ug/L		10/29/22 13:30	11/01/22 20:52	1
gamma-Chlordane	ND		0.050		ug/L		10/29/22 13:30	11/01/22 20:52	1
Heptachlor	ND		0.040		ug/L		10/29/22 13:30	11/01/22 20:52	1
Heptachlor epoxide (isomer B)	ND		0.050		ug/L		10/29/22 13:30	11/01/22 20:52	1
Hexachlorobenzene	ND		0.050		ug/L		10/29/22 13:30	11/01/22 20:52	1
Hexachlorocyclopentadiene	ND		0.050		ug/L		10/29/22 13:30	11/01/22 20:52	1
Indeno[1,2,3-cd]pyrene	ND		0.050		ug/L		10/29/22 13:30	11/01/22 20:52	1
Isophorone	ND		0.50		ug/L		10/29/22 13:30	11/01/22 20:52	1
Lindane	ND		0.040		ug/L		10/29/22 13:30	11/01/22 20:52	1
Malathion	ND		0.10		ug/L		10/29/22 13:30	11/01/22 20:52	1
Methoxychlor	ND		0.10		ug/L		10/29/22 13:30	11/01/22 20:52	1
Metolachlor	ND		0.050		ug/L		10/29/22 13:30	11/01/22 20:52	1
Metribuzin	ND	^3+	0.050		ug/L		10/29/22 13:30	11/01/22 20:52	1
Molinate	ND		0.10		ug/L		10/29/22 13:30	11/01/22 20:52	1
Naphthalene	ND		0.30		ug/L		10/29/22 13:30	11/01/22 20:52	1
Parathion	ND		0.10		ug/L		10/29/22 13:30	11/01/22 20:52	1
Pendimethalin (Penoxaline)	ND		0.10		ug/L		10/29/22 13:30	11/01/22 20:52	1
Total Permethrin (mixed isomers)	ND		0.20		ug/L		10/29/22 13:30	11/01/22 20:52	1
Phenanthrene	ND		0.040		ug/L		10/29/22 13:30	11/01/22 20:52	1
Propachlor	ND		0.050		ug/L		10/29/22 13:30	11/01/22 20:52	1
Pyrene	ND		0.050		ug/L		10/29/22 13:30	11/01/22 20:52	1
Simazine	ND		0.050		ug/L		10/29/22 13:30	11/01/22 20:52	1
Terbacil	ND		0.10		ug/L		10/29/22 13:30	11/01/22 20:52	1
Terbuthylazine	ND		0.10		ug/L		10/29/22 13:30	11/01/22 20:52	1
Thiobencarb	ND		0.20		ug/L		10/29/22 13:30	11/01/22 20:52	1
trans-Nonachlor	ND		0.050		ug/L		10/29/22 13:30	11/01/22 20:52	1
Trifluralin	ND		0.10		ug/L		10/29/22 13:30	11/01/22 20:52	1

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Tentatively Identified Compound	*None*		*ug/L*				*10/29/22 13:30*	*11/01/22 20:52*	*1*

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Nitro-m-xylene	*102*		*70 - 130*	*10/29/22 13:30*	*11/01/22 20:52*	*1*
Triphenylphosphate	*98*		*70 - 130*	*10/29/22 13:30*	*11/01/22 20:52*	*1*
Perylene-d12	*90*		*70 - 130*	*10/29/22 13:30*	*11/01/22 20:52*	*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		10/31/22 00:00	11/15/22 12:29	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 12:29	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 12:29	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 12:29	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 12:29	1
Acenaphthene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 12:29	1
Acenaphthylene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 12:29	1
Anthracene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 12:29	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 12:29	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 12:29	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 12:29	1

Client Sample ID: HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-25927-1
Date Collected: 10/24/22 09:30
Matrix: Drinking Water
Date Received: 10/26/22 10:00
PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[e]pyrene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 12:29	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 12:29	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 12:29	1
Biphenyl	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 12:29	1
Chrysene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 12:29	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 12:29	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 12:29	1
Dibenzothiophene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 12:29	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		10/31/22 00:00	11/15/22 12:29	1
Fluoranthene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 12:29	1
Fluorene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 12:29	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 12:29	1
Naphthalene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 12:29	1
Perylene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 12:29	1
Phenanthrene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 12:29	1
Pyrene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 12:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
(d10-Acenaphthene)	*46*		*45 - 118*	*10/31/22 00:00*	*11/15/22 12:29*	*1*
(d10-Phenanthrene)	*75*		*56 - 123*	*10/31/22 00:00*	*11/15/22 12:29*	*1*
(d12-Chrysene)	*91*		*36 - 142*	*10/31/22 00:00*	*11/15/22 12:29*	*1*
(d12-Perylene)	*79*		*36 - 161*	*10/31/22 00:00*	*11/15/22 12:29*	*1*
(d8-Naphthalene)	*31*		*20 - 112*	*10/31/22 00:00*	*11/15/22 12:29*	*1*

Method: 8015 Gas (Purgeable) LL (EAL) - SW846 8015B Gasoline Range Organics

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GASOLINE	ND	U	0.020		mg/L			10/28/22 17:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
BROMOFLUOROBENZENE	*92*		*60 - 140*		*10/28/22 17:45*	*1*

Method: 8015 LL DRO/MRO/JP5/JP8 - 8015 - TPH DRO/ORO

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DIESEL	ND	U	0.027		mg/L			10/28/22 20:31	1
JP5	ND	U	0.055		mg/L			10/28/22 20:31	1
JP8	ND	U	0.055		mg/L			10/28/22 20:31	1
MOTOR OIL	ND	U	0.055		mg/L			10/28/22 20:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
BROMOBENZENE	*86*		*60 - 130*		*10/28/22 20:31*	*1*
HEXACOSANE	*105*		*60 - 130*		*10/28/22 20:31*	*1*

Client Sample ID: TB HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-25927-2
Date Collected: 10/24/22 09:30
Matrix: Drinking Water
Date Received: 10/26/22 10:00

Method: 8015 Gas (Purgeable) LL (EAL) - SW846 8015B Gasoline Range Organics

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GASOLINE	ND	U	0.020		mg/L			10/28/22 18:21	1

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

Job ID: 380-25927-1

Client Sample ID: TB HALAWA SHAFT VIEWING POOL
Date Collected: 10/24/22 09:30
Date Received: 10/26/22 10:00

Lab Sample ID: 380-25927-2
Matrix: Drinking Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
BROMOFLUOROBENZENE	97		60 - 140		10/28/22 18:21	1

Action Limit Summary

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

Job ID: 380-25927-1

Client Sample ID: HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-25927-1

PWSID Number: HI0000331

Compliance Check

The results obtained from the analytical testing of this data set were checked against compliance limits received from the client. Any results at or above the compliance limits have been highlighted for your convenience.

Analyte	Result	Qualifier	Unit	Limit	RL	Method	Prep Type
Alachlor	ND		ug/L	2	0.050	525.2	Total/NA
Atrazine	ND		ug/L	3	0.050	525.2	Total/NA
Benzo[a]pyrene	ND		ug/L	0.2	0.020	525.2	Total/NA
Di(2-ethylhexyl)adipate	ND	B ^3+	ug/L	400	0.60	525.2	Total/NA
Bis(2-ethylhexyl) phthalate	ND		ug/L	6	0.60	525.2	Total/NA
Endrin	ND		ug/L	2	0.10	525.2	Total/NA
Heptachlor	ND		ug/L	0.4	0.040	525.2	Total/NA
Heptachlor epoxide (isomer B)	ND		ug/L	0.2	0.050	525.2	Total/NA
Hexachlorobenzene	ND		ug/L	1	0.050	525.2	Total/NA
Hexachlorocyclopentadiene	ND		ug/L	50	0.050	525.2	Total/NA
Lindane	ND		ug/L	0.2	0.040	525.2	Total/NA
Methoxychlor	ND		ug/L	40	0.10	525.2	Total/NA
Simazine	ND		ug/L	4	0.050	525.2	Total/NA

Surrogate Summary

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

Job ID: 380-25927-1

Method: 525.2 - Semivolatile Organic Compounds (GC/MS)

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

		Percent Surrogate Recovery (Acceptance Limits)		
		2NMX	TPP	PRY
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	(70-130)
380-25927-1	HALAWA SHAFT VIEWING PO(	102	98	90

Surrogate Legend

2NMX = 2-Nitro-m-xylene
TPP = Triphenylphosphate
PRY = Perylene-d12

Method: 525.2 - Semivolatile Organic Compounds (GC/MS)

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

		Percent Surrogate Recovery (Acceptance Limits)		
		2NMX	TPP	PRY
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	(70-130)
380-25725-B-1-A MS	Matrix Spike	84	129	95
380-25919-B-1-A DU	Duplicate	104	95	110
LCS 380-22573/3-A	Lab Control Sample	100	93	108
LCSD 380-22573/4-A	Lab Control Sample Dup	102	102	108
MB 380-22573/1-A	Method Blank	109	92	89
MRL 380-22573/2-A	Lab Control Sample	103	99	92

Surrogate Legend

2NMX = 2-Nitro-m-xylene
TPP = Triphenylphosphate
PRY = Perylene-d12

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)
101128-B1	Method Blank	84	85	111	59	87
101128-BS1	Lab Control Sample	86	94	89	69	90
101128-BS2	Lab Control Sample Dup	81	91	89	72	88

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	(45-118)	(56-123)	(36-142)	(20-112)	(36-161)
380-25927-1	HALAWA SHAFT VIEWING PO(	46	75	91	31	79

Surrogate Legend

(d10-Acenaphthene) = (d10-Acenaphthene)
(d10-Phenanthrene) = (d10-Phenanthrene)

Surrogate Summary

Client: City & County of Honolulu
Job ID: 380-25927-1
Project/Site: RED-HILL

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

Method: 8015 Gas (Purgeable) LL (EAL) - SW846 8015B Gasoline Range Organics

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

		Percent Surrogate Recovery (Acceptance Limits)
		BFB
Lab Sample ID	Client Sample ID	(60-140)
380-25927-1	HALAWA SHAFT VIEWING PO(	92
380-25927-2	TB HALAWA SHAFT VIEWING POOL	97

Surrogate Legend
BFB = BROMOFLUOROBENZENE

Method: 8015 Gas (Purgeable) LL (EAL) - SW846 8015B Gasoline Range Organics

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

		Percent Surrogate Recovery (Acceptance Limits)
		BFB
Lab Sample ID	Client Sample ID	(70-130)
22VGH7J14C	LCD	112
22VGH7J14L	Lab Control Sample	101

Surrogate Legend
BFB = BROMOFLUOROBENZENE

Method: 8015 Gas (Purgeable) LL (EAL) - SW846 8015B Gasoline Range Organics

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

		Percent Surrogate Recovery (Acceptance Limits)
		BFB
Lab Sample ID	Client Sample ID	
22VGH7J14B	Method Blank	

Surrogate Legend
BFB = BROMOFLUOROBENZENE

Method: 8015 LL DRO/MRO/JP5/JP8 - 8015 - TPH DRO/ORO

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

		Percent Surrogate Recovery (Acceptance Limits)	
		BB	XACOSA
Lab Sample ID	Client Sample ID	(60-130)	(60-130)
380-25927-1	HALAWA SHAFT VIEWING PO(	86	105

Surrogate Legend
BB = BROMOBENZENE
HEXACOSANE = HEXACOSANE

Method: 8015 LL DRO/MRO/JP5/JP8 - 8015 - TPH DRO/ORO

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

		Percent Surrogate Recovery (Acceptance Limits)	
		BB	XACOSA
Lab Sample ID	Client Sample ID		
22DSJ059WB	Method Blank		

Surrogate Legend

Surrogate Summary

Client: City & County of Honolulu
Job ID: 380-25927-1
Project/Site: RED-HILL

BB = BROMOBENZENE
HEXACOSANE = HEXACOSANE

Method: 8015 LL DRO/MRO/JP5/JP8 - 8015 - TPH DRO/ORO

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

		Percent Surrogate Recovery (Acceptance Limits)	
		BB	XACOSA
Lab Sample ID	Client Sample ID	(60-130)	(60-130)
22DSJ059WC	LCD	102	106
22DSJ059WL	Lab Control Sample	104	106
22J5J059WC	LCD	88	92
22J5J059WL	Lab Control Sample	91	98
22J8J059WC	LCD	115	98
22J8J059WL	Lab Control Sample	96	97

Surrogate Legend

BB = BROMOBENZENE
HEXACOSANE = HEXACOSANE

Method: 525.2 - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 380-22573/1-A
Matrix: Water
Analysis Batch: 22756

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 22573

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		0.099		ug/L		10/29/22 13:30	11/01/22 12:23	1
2,4'-DDE	ND		0.099		ug/L		10/29/22 13:30	11/01/22 12:23	1
2,4'-DDT	ND		0.099		ug/L		10/29/22 13:30	11/01/22 12:23	1
2,4-Dinitrotoluene	ND		0.099		ug/L		10/29/22 13:30	11/01/22 12:23	1
2,6-Dinitrotoluene	ND		0.099		ug/L		10/29/22 13:30	11/01/22 12:23	1
4,4'-DDD	ND		0.099		ug/L		10/29/22 13:30	11/01/22 12:23	1
4,4'-DDE	ND		0.099		ug/L		10/29/22 13:30	11/01/22 12:23	1
4,4'-DDT	ND		0.099		ug/L		10/29/22 13:30	11/01/22 12:23	1
Acenaphthene	ND		0.099		ug/L		10/29/22 13:30	11/01/22 12:23	1
Acenaphthylene	ND		0.099		ug/L		10/29/22 13:30	11/01/22 12:23	1
Acetochlor	ND		0.099		ug/L		10/29/22 13:30	11/01/22 12:23	1
Alachlor	ND		0.049		ug/L		10/29/22 13:30	11/01/22 12:23	1
alpha-BHC	ND		0.099		ug/L		10/29/22 13:30	11/01/22 12:23	1
alpha-Chlordane	ND		0.049		ug/L		10/29/22 13:30	11/01/22 12:23	1
Anthracene	ND		0.020		ug/L		10/29/22 13:30	11/01/22 12:23	1
Atrazine	ND		0.049		ug/L		10/29/22 13:30	11/01/22 12:23	1
Benz(a)anthracene	ND		0.049		ug/L		10/29/22 13:30	11/01/22 12:23	1
Benzo[a]pyrene	ND		0.020		ug/L		10/29/22 13:30	11/01/22 12:23	1
Benzo[b]fluoranthene	ND		0.020		ug/L		10/29/22 13:30	11/01/22 12:23	1
Benzo[g,h,i]perylene	ND		0.049		ug/L		10/29/22 13:30	11/01/22 12:23	1
Benzo[k]fluoranthene	ND		0.020		ug/L		10/29/22 13:30	11/01/22 12:23	1
beta-BHC	ND		0.099		ug/L		10/29/22 13:30	11/01/22 12:23	1
Bromacil	ND		0.099		ug/L		10/29/22 13:30	11/01/22 12:23	1
Butachlor	ND		0.049		ug/L		10/29/22 13:30	11/01/22 12:23	1
Butylbenzylphthalate	ND		0.49		ug/L		10/29/22 13:30	11/01/22 12:23	1
Caffeine	ND		0.049		ug/L		10/29/22 13:30	11/01/22 12:23	1
Chlorobenzilate	ND		0.099		ug/L		10/29/22 13:30	11/01/22 12:23	1
Chloroneb	ND		0.099		ug/L		10/29/22 13:30	11/01/22 12:23	1
Chlorothalonil (Draconil, Bravo)	ND		0.099		ug/L		10/29/22 13:30	11/01/22 12:23	1
Chlorpyrifos	ND		0.049		ug/L		10/29/22 13:30	11/01/22 12:23	1
Chrysene	ND		0.020		ug/L		10/29/22 13:30	11/01/22 12:23	1
delta-BHC	ND		0.099		ug/L		10/29/22 13:30	11/01/22 12:23	1
Di(2-ethylhexyl)adipate	0.745	B	0.59		ug/L		10/29/22 13:30	11/01/22 12:23	1
Bis(2-ethylhexyl) phthalate	ND		0.59		ug/L		10/29/22 13:30	11/01/22 12:23	1
Diazinon (Qualitative)	ND		0.099		ug/L		10/29/22 13:30	11/01/22 12:23	1
Dibenz(a,h)anthracene	ND		0.049		ug/L		10/29/22 13:30	11/01/22 12:23	1
Diclorvos (DDVP)	ND		0.049		ug/L		10/29/22 13:30	11/01/22 12:23	1
Dieldrin	ND		0.20		ug/L		10/29/22 13:30	11/01/22 12:23	1
Diethylphthalate	ND		0.49		ug/L		10/29/22 13:30	11/01/22 12:23	1
Dimethoate	ND		0.099		ug/L		10/29/22 13:30	11/01/22 12:23	1
Dimethylphthalate	ND		0.49		ug/L		10/29/22 13:30	11/01/22 12:23	1
Di-n-butyl phthalate	ND		0.99		ug/L		10/29/22 13:30	11/01/22 12:23	1
Di-n-octyl phthalate	ND		0.099		ug/L		10/29/22 13:30	11/01/22 12:23	1
Endosulfan I (Alpha)	ND		0.099		ug/L		10/29/22 13:30	11/01/22 12:23	1
Endosulfan II (Beta)	ND		0.099		ug/L		10/29/22 13:30	11/01/22 12:23	1
Endosulfan sulfate	ND		0.099		ug/L		10/29/22 13:30	11/01/22 12:23	1
Endrin	ND		0.099		ug/L		10/29/22 13:30	11/01/22 12:23	1
Endrin aldehyde	ND		0.099		ug/L		10/29/22 13:30	11/01/22 12:23	1

Method: 525.2 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 380-22573/1-A
Matrix: Water
Analysis Batch: 22756

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 22573

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
EPTC	ND		0.099		ug/L		10/29/22 13:30	11/01/22 12:23	1
Fluoranthene	ND		0.099		ug/L		10/29/22 13:30	11/01/22 12:23	1
Fluorene	ND		0.049		ug/L		10/29/22 13:30	11/01/22 12:23	1
gamma-Chlordane	ND		0.049		ug/L		10/29/22 13:30	11/01/22 12:23	1
Heptachlor	ND		0.040		ug/L		10/29/22 13:30	11/01/22 12:23	1
Heptachlor epoxide (isomer B)	ND		0.049		ug/L		10/29/22 13:30	11/01/22 12:23	1
Hexachlorobenzene	ND		0.049		ug/L		10/29/22 13:30	11/01/22 12:23	1
Hexachlorocyclopentadiene	ND		0.049		ug/L		10/29/22 13:30	11/01/22 12:23	1
Indeno[1,2,3-cd]pyrene	ND		0.049		ug/L		10/29/22 13:30	11/01/22 12:23	1
Isophorone	ND		0.49		ug/L		10/29/22 13:30	11/01/22 12:23	1
Lindane	ND		0.040		ug/L		10/29/22 13:30	11/01/22 12:23	1
Malathion	ND		0.099		ug/L		10/29/22 13:30	11/01/22 12:23	1
Methoxychlor	ND		0.099		ug/L		10/29/22 13:30	11/01/22 12:23	1
Metolachlor	ND		0.049		ug/L		10/29/22 13:30	11/01/22 12:23	1
Metribuzin	ND		0.049		ug/L		10/29/22 13:30	11/01/22 12:23	1
Molinate	ND		0.099		ug/L		10/29/22 13:30	11/01/22 12:23	1
Naphthalene	ND		0.30		ug/L		10/29/22 13:30	11/01/22 12:23	1
Parathion	ND		0.099		ug/L		10/29/22 13:30	11/01/22 12:23	1
Pendimethalin (Penoxaline)	ND		0.099		ug/L		10/29/22 13:30	11/01/22 12:23	1
Total Permethrin (mixed isomers)	ND		0.20		ug/L		10/29/22 13:30	11/01/22 12:23	1
Phenanthrene	ND		0.040		ug/L		10/29/22 13:30	11/01/22 12:23	1
Propachlor	ND		0.049		ug/L		10/29/22 13:30	11/01/22 12:23	1
Pyrene	ND		0.049		ug/L		10/29/22 13:30	11/01/22 12:23	1
Simazine	ND		0.049		ug/L		10/29/22 13:30	11/01/22 12:23	1
Terbacil	ND		0.099		ug/L		10/29/22 13:30	11/01/22 12:23	1
Terbuthylazine	ND		0.099		ug/L		10/29/22 13:30	11/01/22 12:23	1
Thiobencarb	ND		0.20		ug/L		10/29/22 13:30	11/01/22 12:23	1
trans-Nonachlor	ND		0.049		ug/L		10/29/22 13:30	11/01/22 12:23	1
Trifluralin	ND		0.099		ug/L		10/29/22 13:30	11/01/22 12:23	1

Tentatively Identified Compound	*MB Est. Result*	*MB Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Unknown	*1.39*	*T J*	*ug/L*		*2.42*		*10/29/22 13:30*	*11/01/22 12:23*	*1*
Unknown	*1.69*	*T J*	*ug/L*		*2.72*		*10/29/22 13:30*	*11/01/22 12:23*	*1*
Unknown	*0.749*	*T J*	*ug/L*		*3.91*		*10/29/22 13:30*	*11/01/22 12:23*	*1*
Unknown	*0.724*	*T J*	*ug/L*		*5.90*		*10/29/22 13:30*	*11/01/22 12:23*	*1*
Unknown	*0.862*	*T J*	*ug/L*		*6.59*		*10/29/22 13:30*	*11/01/22 12:23*	*1*
13-Docosenamide, (Z)-	*0.525*	*T J N*	*ug/L*		*10.28*	*112-84-5*	*10/29/22 13:30*	*11/01/22 12:23*	*1*

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Nitro-m-xylene	*109*		*70 - 130*	*10/29/22 13:30*	*11/01/22 12:23*	*1*
Triphenylphosphate	*92*		*70 - 130*	*10/29/22 13:30*	*11/01/22 12:23*	*1*
Perylene-d12	*89*		*70 - 130*	*10/29/22 13:30*	*11/01/22 12:23*	*1*

Method: 525.2 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 380-22573/3-A
Matrix: Water
Analysis Batch: 22756

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 22573

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4'-DDD	1.98	1.90		ug/L		96	70 - 130
2,4'-DDE	1.98	1.88		ug/L		95	70 - 130
2,4'-DDT	1.98	1.74		ug/L		88	70 - 130
2,4-Dinitrotoluene	1.98	1.77		ug/L		89	70 - 130
2,6-Dinitrotoluene	1.98	1.65		ug/L		83	70 - 130
4,4'-DDD	1.98	1.76		ug/L		89	70 - 130
4,4'-DDE	1.98	1.76		ug/L		89	70 - 130
4,4'-DDT	1.98	1.54		ug/L		78	70 - 130
Acenaphthene	1.98	1.74		ug/L		88	70 - 130
Acenaphthylene	1.98	1.66		ug/L		84	70 - 130
Acetochlor	1.98	1.79		ug/L		91	70 - 130
Alachlor	1.98	1.79		ug/L		90	70 - 130
alpha-BHC	1.98	2.00		ug/L		101	70 - 130
alpha-Chlordane	1.98	1.66		ug/L		84	70 - 130
Anthracene	1.98	2.01		ug/L		101	70 - 130
Atrazine	1.98	1.99		ug/L		100	70 - 130
Benz(a)anthracene	1.98	1.52		ug/L		77	70 - 130
Benzo[a]pyrene	1.98	2.37		ug/L		120	70 - 130
Benzo[b]fluoranthene	1.98	2.51		ug/L		127	70 - 130
Benzo[g,h,i]perylene	1.98	2.37		ug/L		120	70 - 130
Benzo[k]fluoranthene	1.98	2.42		ug/L		122	70 - 130
beta-BHC	1.98	2.03		ug/L		102	70 - 130
Bromacil	1.98	1.97		ug/L		100	70 - 130
Butachlor	1.98	1.92		ug/L		97	70 - 130
Butylbenzylphthalate	1.98	1.98		ug/L		100	70 - 130
Caffeine	1.98	1.30		ug/L		66	45 - 137
Chlorobenzilate	1.98	1.88		ug/L		95	70 - 130
Chloroneb	1.98	2.01		ug/L		102	70 - 130
Chlorothalonil (Draconil, Bravo)	1.98	1.79		ug/L		90	70 - 130
Chlorpyrifos	1.98	2.13		ug/L		107	70 - 130
Chrysene	1.98	1.79		ug/L		91	70 - 130
delta-BHC	1.98	1.89		ug/L		95	70 - 130
Di(2-ethylhexyl)adipate	1.98	2.08		ug/L		105	70 - 130
Bis(2-ethylhexyl) phthalate	1.98	2.17		ug/L		110	70 - 130
Diazinon (Qualitative)	1.98	1.73		ug/L		87	15 - 132
Dibenz(a,h)anthracene	1.98	2.53		ug/L		128	70 - 130
Diclorvos (DDVP)	1.98	2.12		ug/L		107	70 - 130
Dieldrin	1.98	1.75		ug/L		89	70 - 130
Diethylphthalate	1.98	1.80		ug/L		91	70 - 130
Dimethoate	1.98	1.08		ug/L		54	35 - 100
Dimethylphthalate	1.98	1.89		ug/L		96	70 - 130
Di-n-butyl phthalate	3.96	3.83		ug/L		97	70 - 130
Di-n-octyl phthalate	1.98	1.82		ug/L		92	70 - 130
Endosulfan I (Alpha)	1.98	1.90		ug/L		96	70 - 130
Endosulfan II (Beta)	1.98	1.79		ug/L		90	70 - 130
Endosulfan sulfate	1.98	1.76		ug/L		89	70 - 130
Endrin	1.98	1.95		ug/L		99	70 - 130
Endrin aldehyde	1.98	1.85		ug/L		93	70 - 130

Method: 525.2 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 380-22573/3-A
Matrix: Water
Analysis Batch: 22756

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 22573

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
EPTC	1.98	1.82		ug/L		92	70 - 130
Fluoranthene	1.98	2.04		ug/L		103	70 - 130
Fluorene	1.98	1.95		ug/L		98	70 - 130
gamma-Chlordane	1.98	1.60		ug/L		81	70 - 130
Heptachlor	1.98	1.83		ug/L		93	70 - 130
Heptachlor epoxide (isomer B)	1.98	1.59		ug/L		80	70 - 130
Hexachlorobenzene	1.98	1.74		ug/L		88	70 - 130
Hexachlorocyclopentadiene	1.98	1.84		ug/L		93	70 - 130
Indeno[1,2,3-cd]pyrene	1.98	2.44		ug/L		123	70 - 130
Isophorone	1.98	1.84		ug/L		93	70 - 130
Lindane	1.98	2.02		ug/L		102	70 - 130
Malathion	1.98	2.01		ug/L		102	70 - 130
Methoxychlor	1.98	1.74		ug/L		88	70 - 130
Metolachlor	1.98	1.99		ug/L		101	70 - 130
Metribuzin	1.98	1.87		ug/L		94	70 - 130
Molinate	1.98	1.88		ug/L		95	70 - 130
Naphthalene	1.98	1.82		ug/L		92	70 - 130
Parathion	1.98	1.79		ug/L		91	70 - 130
Pendimethalin (Penoxaline)	1.98	1.74		ug/L		88	70 - 130
Phenanthrene	1.98	2.03		ug/L		103	70 - 130
Propachlor	1.98	2.02		ug/L		102	70 - 130
Pyrene	1.98	2.17		ug/L		110	70 - 130
Simazine	1.98	2.11		ug/L		107	70 - 130
Terbacil	1.98	1.98		ug/L		100	70 - 130
Terbuthylazine	1.98	1.93		ug/L		98	70 - 130
Thiobencarb	1.98	1.98		ug/L		100	70 - 130
trans-Nonachlor	1.98	2.13		ug/L		107	70 - 130
Trifluralin	1.98	1.67		ug/L		84	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Nitro-m-xylene	*100*		*70 - 130*
Triphenylphosphate	*93*		*70 - 130*
Perylene-d12	*108*		*70 - 130*

Lab Sample ID: LCSD 380-22573/4-A
Matrix: Water
Analysis Batch: 22756

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 22573

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2,4'-DDD	1.97	2.07		ug/L		105	70 - 130	9	20
2,4'-DDE	1.97	1.95		ug/L		99	70 - 130	4	20
2,4'-DDT	1.97	2.13		ug/L		108	70 - 130	20	20
2,4-Dinitrotoluene	1.97	1.74		ug/L		88	70 - 130	2	20
2,6-Dinitrotoluene	1.97	1.65		ug/L		84	70 - 130	0	20
4,4'-DDD	1.97	2.15		ug/L		109	70 - 130	20	20
4,4'-DDE	1.97	1.85		ug/L		94	70 - 130	5	20
4,4'-DDT	1.97	1.62		ug/L		82	70 - 130	5	20
Acenaphthene	1.97	1.69		ug/L		85	70 - 130	3	20

Method: 525.2 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 380-22573/4-A
Matrix: Water
Analysis Batch: 22756

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 22573

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Acenaphthylene			1.97	1.64		ug/L		83	70 - 130	1	20
Acetochlor			1.97	1.89		ug/L		96	70 - 130	5	20
Alachlor			1.97	1.84		ug/L		93	70 - 130	3	20
alpha-BHC			1.97	1.97		ug/L		100	70 - 130	1	20
alpha-Chlordane			1.97	1.78		ug/L		90	70 - 130	7	20
Anthracene			1.97	1.93		ug/L		98	70 - 130	4	20
Atrazine			1.97	2.05		ug/L		104	70 - 130	3	20
Benz(a)anthracene			1.97	1.74		ug/L		88	70 - 130	13	20
Benzo[a]pyrene			1.97	2.38		ug/L		121	70 - 130	1	20
Benzo[b]fluoranthene			1.97	2.49		ug/L		126	70 - 130	1	20
Benzo[g,h,i]perylene			1.97	2.37		ug/L		120	70 - 130	0	20
Benzo[k]fluoranthene			1.97	2.49		ug/L		126	70 - 130	3	20
beta-BHC			1.97	2.02		ug/L		102	70 - 130	0	20
Bromacil			1.97	2.10		ug/L		106	70 - 130	6	20
Butachlor			1.97	2.13		ug/L		108	70 - 130	11	20
Butylbenzylphthalate			1.97	2.14		ug/L		108	70 - 130	8	20
Caffeine			1.97	1.23		ug/L		62	45 - 137	6	20
Chlorobenzilate			1.97	2.01		ug/L		102	70 - 130	7	20
Chloroneb			1.97	1.94		ug/L		98	70 - 130	3	20
Chlorothalonil (Draconil, Bravo)			1.97	1.94		ug/L		98	70 - 130	8	20
Chlorpyrifos			1.97	2.28		ug/L		116	70 - 130	7	20
Chrysene			1.97	1.85		ug/L		94	70 - 130	3	20
delta-BHC			1.97	1.92		ug/L		97	70 - 130	2	20
Di(2-ethylhexyl)adipate			1.97	2.19		ug/L		111	70 - 130	5	20
Bis(2-ethylhexyl) phthalate			1.97	2.15		ug/L		109	70 - 130	1	20
Diazinon (Qualitative)			1.97	1.80		ug/L		91	15 - 132	4	20
Dibenz(a,h)anthracene			1.97	2.52		ug/L		128	70 - 130	0	20
Diclorvos (DDVP)			1.97	2.14		ug/L		108	70 - 130	1	20
Dieldrin			1.97	1.88		ug/L		95	70 - 130	7	20
Diethylphthalate			1.97	1.86		ug/L		94	70 - 130	3	20
Dimethoate			1.97	1.07		ug/L		54	35 - 100	1	20
Dimethylphthalate			1.97	1.90		ug/L		96	70 - 130	0	20
Di-n-butyl phthalate			3.95	4.01		ug/L		102	70 - 130	5	20
Di-n-octyl phthalate			1.97	1.92		ug/L		97	70 - 130	5	20
Endosulfan I (Alpha)			1.97	2.06		ug/L		104	70 - 130	8	20
Endosulfan II (Beta)			1.97	2.01		ug/L		102	70 - 130	12	20
Endosulfan sulfate			1.97	1.89		ug/L		96	70 - 130	7	20
Endrin			1.97	2.10		ug/L		106	70 - 130	7	20
Endrin aldehyde			1.97	1.83		ug/L		93	70 - 130	1	20
EPTC			1.97	1.81		ug/L		92	70 - 130	1	20
Fluoranthene			1.97	2.24		ug/L		114	70 - 130	10	20
Fluorene			1.97	1.84		ug/L		93	70 - 130	6	20
gamma-Chlordane			1.97	1.83		ug/L		93	70 - 130	13	20
Heptachlor			1.97	1.90		ug/L		96	70 - 130	3	20
Heptachlor epoxide (isomer B)			1.97	1.71		ug/L		87	70 - 130	7	20
Hexachlorobenzene			1.97	1.72		ug/L		87	70 - 130	1	20
Hexachlorocyclopentadiene			1.97	1.85		ug/L		94	70 - 130	1	20
Indeno[1,2,3-cd]pyrene			1.97	2.46		ug/L		124	70 - 130	1	20
Isophorone			1.97	1.87		ug/L		95	70 - 130	2	20

Method: 525.2 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 380-22573/4-A
Matrix: Water
Analysis Batch: 22756

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 22573

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Lindane			1.97	1.98		ug/L		101	70 - 130	2	20
Malathion			1.97	2.17		ug/L		110	70 - 130	8	20
Methoxychlor			1.97	1.73		ug/L		88	70 - 130	1	20
Metolachlor			1.97	2.11		ug/L		107	70 - 130	6	20
Metribuzin			1.97	1.89		ug/L		96	70 - 130	1	20
Molinate			1.97	1.94		ug/L		98	70 - 130	3	20
Naphthalene			1.97	1.86		ug/L		94	70 - 130	2	20
Parathion			1.97	1.96		ug/L		99	70 - 130	9	20
Pendimethalin (Penoxaline)			1.97	1.87		ug/L		95	70 - 130	7	20
Phenanthrene			1.97	1.92		ug/L		97	70 - 130	6	20
Propachlor			1.97	2.08		ug/L		105	70 - 130	3	20
Pyrene			1.97	2.34		ug/L		119	70 - 130	8	20
Simazine			1.97	2.18		ug/L		110	70 - 130	3	20
Terbacil			1.97	2.06		ug/L		104	70 - 130	4	20
Terbuthylazine			1.97	1.94		ug/L		98	70 - 130	0	20
Thiobencarb			1.97	2.08		ug/L		106	70 - 130	5	20
trans-Nonachlor			1.97	2.33		ug/L		118	70 - 130	9	20
Trifluralin			1.97	1.76		ug/L		89	70 - 130	6	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Nitro-m-xylene	*102*		*70 - 130*
Triphenylphosphate	*102*		*70 - 130*
Perylene-d12	*108*		*70 - 130*

Lab Sample ID: MRL 380-22573/2-A
Matrix: Water
Analysis Batch: 22756

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 22573

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
2,4'-DDD			0.0997	0.115		ug/L		116	50 - 150		
2,4'-DDE			0.0997	0.0692	J	ug/L		69	50 - 150		
2,4'-DDT			0.0997	0.0853	J	ug/L		86	50 - 150		
2,4-Dinitrotoluene			0.0997	0.0721	J	ug/L		72	50 - 150		
2,6-Dinitrotoluene			0.0997	0.0832	J	ug/L		83	50 - 150		
4,4'-DDD			0.0997	0.0990	J	ug/L		99	50 - 150		
4,4'-DDE			0.0997	0.0808	J	ug/L		81	50 - 150		
4,4'-DDT			0.0997	0.127		ug/L		127	50 - 150		
Acenaphthene			0.0997	0.0976	J	ug/L		98	50 - 150		
Acenaphthylene			0.0997	0.0812	J	ug/L		81	50 - 150		
Acetochlor			0.0499	0.0378	J	ug/L		76	50 - 150		
Alachlor			0.0499	0.0480	J	ug/L		96	50 - 150		
alpha-BHC			0.0997	0.0943	J	ug/L		95	50 - 150		
alpha-Chlordane			0.0249	ND		ug/L		92	50 - 150		
Anthracene			0.0199	0.0198	J	ug/L		99	50 - 150		
Atrazine			0.0499	0.0590		ug/L		118	50 - 150		
Benz(a)anthracene			0.0499	0.0453	J	ug/L		91	50 - 150		
Benzo[a]pyrene			0.0199	0.0162	J	ug/L		81	50 - 150		
Benzo[b]fluoranthene			0.0199	0.0184	J	ug/L		92	50 - 150		

Method: 525.2 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MRL 380-22573/2-A
Matrix: Water
Analysis Batch: 22756

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 22573

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[g,h,i]perylene	0.0499	0.0423	J	ug/L		85	50 - 150
Benzo[k]fluoranthene	0.0199	0.0171	J	ug/L		86	50 - 150
beta-BHC	0.0997	0.111		ug/L		111	50 - 150
Bromacil	0.0997	0.141		ug/L		141	50 - 150
Butachlor	0.0499	0.0536		ug/L		107	50 - 150
Butylbenzylphthalate	0.150	0.165	J	ug/L		110	50 - 150
Caffeine	0.0499	0.0338	J	ug/L		68	50 - 150
Chlorobenzilate	0.0997	0.104		ug/L		104	50 - 150
Chloroneb	0.0997	0.0970	J	ug/L		97	50 - 150
Chlorothalonil (Draconil, Bravo)	0.0997	0.128		ug/L		129	50 - 150
Chlorpyrifos	0.0499	0.0509		ug/L		102	50 - 150
Chrysene	0.0199	0.0201		ug/L		101	50 - 150
delta-BHC	0.0997	0.118		ug/L		119	50 - 150
Di(2-ethylhexyl)adipate	0.299	0.895	^3+	ug/L		299	50 - 150
Bis(2-ethylhexyl) phthalate	0.598	0.580	J	ug/L		97	50 - 150
Diazinon (Qualitative)	0.0997	0.101		ug/L		101	15 - 132
Dibenz(a,h)anthracene	0.0499	0.0422	J	ug/L		85	50 - 150
Diclorvos (DDVP)	0.0499	0.0524		ug/L		105	50 - 150
Dieldrin	0.0997	0.0980	J	ug/L		98	50 - 150
Diethylphthalate	0.150	0.174	J	ug/L		116	50 - 150
Dimethoate	0.0997	0.0541	J	ug/L		54	35 - 100
Dimethylphthalate	0.299	0.266	J	ug/L		89	50 - 150
Di-n-butyl phthalate	0.299	0.274	J	ug/L		92	49 - 243
Di-n-octyl phthalate	0.0997	0.107		ug/L		107	50 - 150
Endosulfan I (Alpha)	0.0997	0.0818	J	ug/L		82	50 - 150
Endosulfan II (Beta)	0.0997	0.121		ug/L		122	50 - 150
Endosulfan sulfate	0.0997	0.0949	J	ug/L		95	50 - 150
Endrin	0.0997	0.116		ug/L		116	50 - 150
Endrin aldehyde	0.0997	ND		ug/L		74	50 - 150
EPTC	0.0997	0.0885	J	ug/L		89	50 - 150
Fluoranthene	0.0499	0.0474	J	ug/L		95	50 - 150
Fluorene	0.0499	ND		ug/L		95	50 - 150
gamma-Chlordane	0.0249	0.0250	J	ug/L		100	50 - 150
Heptachlor	0.0399	0.0485		ug/L		122	50 - 150
Heptachlor epoxide (isomer B)	0.0499	0.0453	J	ug/L		91	50 - 150
Hexachlorobenzene	0.0499	0.0466	J	ug/L		93	50 - 150
Hexachlorocyclopentadiene	0.0499	0.0395	J	ug/L		79	50 - 150
Indeno[1,2,3-cd]pyrene	0.0499	0.0410	J	ug/L		82	50 - 150
Isophorone	0.0997	0.103	J	ug/L		104	50 - 150
Lindane	0.0399	0.0412		ug/L		103	50 - 150
Malathion	0.0997	0.0933	J	ug/L		94	50 - 150
Methoxychlor	0.0997	0.116		ug/L		117	50 - 150
Metolachlor	0.0499	0.0526		ug/L		106	50 - 150
Metribuzin	0.0499	0.0870	^3+	ug/L		175	50 - 150
Molinate	0.0997	0.0974	J	ug/L		98	50 - 150
Naphthalene	0.0997	0.110	J	ug/L		110	50 - 150
Parathion	0.0997	0.125		ug/L		125	50 - 150
Pendimethalin (Penoxaline)	0.0997	0.106		ug/L		107	50 - 150
Phenanthrene	0.0199	0.0243	J	ug/L		122	50 - 150

Method: 525.2 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MRL 380-22573/2-A
Matrix: Water
Analysis Batch: 22756

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 22573

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits		
Propachlor			0.0499	0.0529		ug/L		106	50 - 150		
Pyrene			0.0499	0.0433	J	ug/L		87	50 - 150		
Simazine			0.0499	0.0539		ug/L		108	50 - 150		
Terbacil			0.0997	0.118		ug/L		119	50 - 150		
Terbuthylazine			0.0997	0.106		ug/L		106	50 - 150		
Thiobencarb			0.0997	0.119	J	ug/L		119	50 - 150		
trans-Nonachlor			0.0249	ND		ug/L		101	50 - 150		
Trifluralin			0.0997	0.107		ug/L		107	50 - 150		

Surrogate	*MRL %Recovery*	*MRL Qualifier*	*Limits*
2-Nitro-m-xylene	*103*		*70 - 130*
Triphenylphosphate	*99*		*70 - 130*
Perylene-d12	*92*		*70 - 130*

Lab Sample ID: 380-25725-B-1-A MS
Matrix: Water
Analysis Batch: 22756

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 22573

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
2,4'-DDD	ND		1.95	2.21		ug/L		113	70 - 130		
2,4'-DDE	ND		1.95	2.34		ug/L		120	70 - 130		
2,4'-DDT	ND		1.95	2.39		ug/L		123	70 - 130		
2,4-Dinitrotoluene	ND		1.95	2.24		ug/L		115	70 - 130		
2,6-Dinitrotoluene	ND		1.95	1.83		ug/L		94	70 - 130		
4,4'-DDD	ND	F1	1.95	2.60	F1	ug/L		133	70 - 130		
4,4'-DDE	ND		1.95	2.01		ug/L		103	70 - 130		
4,4'-DDT	ND		1.95	2.38		ug/L		122	70 - 130		
Acenaphthene	ND		1.95	1.64		ug/L		84	70 - 130		
Acenaphthylene	ND		1.95	1.54		ug/L		79	70 - 130		
Acetochlor	ND		1.95	2.15		ug/L		110	70 - 130		
Alachlor	ND		1.95	2.00		ug/L		102	70 - 130		
alpha-BHC	ND		1.95	2.20		ug/L		113	70 - 130		
alpha-Chlordane	ND		1.95	1.97		ug/L		101	70 - 130		
Anthracene	ND		1.95	1.87		ug/L		96	70 - 130		
Atrazine	ND	F1	1.95	2.98	F1	ug/L		153	70 - 130		
Benz(a)anthracene	ND	F1	1.95	2.75	F1	ug/L		141	70 - 130		
Benzo[a]pyrene	ND		1.95	2.08		ug/L		106	70 - 130		
Benzo[b]fluoranthene	ND		1.95	2.15		ug/L		110	70 - 130		
Benzo[g,h,i]perylene	ND		1.95	1.98		ug/L		101	70 - 130		
Benzo[k]fluoranthene	ND		1.95	2.12		ug/L		109	70 - 130		
beta-BHC	ND	F1	1.95	2.81	F1	ug/L		144	70 - 130		
Bromacil	ND		1.95	2.21		ug/L		113	70 - 130		
Butachlor	ND		1.95	2.37		ug/L		121	70 - 130		
Butylbenzylphthalate	ND	F1	1.95	2.72	F1	ug/L		139	70 - 130		
Caffeine	ND		1.95	1.68		ug/L		86	46 - 144		
Chlorobenzilate	ND	F1	1.95	2.56	F1	ug/L		131	70 - 130		
Chloroneb	ND		1.95	2.19		ug/L		112	70 - 130		
Chlorothalonil (Draconil, Bravo)	ND		1.95	2.31		ug/L		118	70 - 130		

Method: 525.2 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 380-25725-B-1-A MS
Matrix: Water
Analysis Batch: 22756

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 22573

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chlorpyrifos	ND		1.95	2.41		ug/L		124	70 - 130
Chrysene	ND		1.95	2.03		ug/L		104	70 - 130
delta-BHC	ND		1.95	2.14		ug/L		109	70 - 130
Di(2-ethylhexyl)adipate	ND	B ^3+ F1	1.95	2.77	F1	ug/L		137	70 - 130
Bis(2-ethylhexyl) phthalate	ND		1.95	1.72		ug/L		88	70 - 130
Diazinon (Qualitative)	ND	F1	1.95	2.65	F1	ug/L		136	15 - 132
Dibenz(a,h)anthracene	ND		1.95	2.06		ug/L		106	70 - 130
Diclorvos (DDVP)	ND		1.95	1.91		ug/L		98	70 - 130
Dieldrin	ND		1.95	2.15		ug/L		110	70 - 130
Diethylphthalate	ND		1.95	2.18		ug/L		112	70 - 130
Dimethoate	ND		1.95	1.99		ug/L		102	34 - 111
Dimethylphthalate	ND		1.95	1.96		ug/L		101	70 - 130
Di-n-butyl phthalate	ND		3.90	4.56		ug/L		117	70 - 130
Di-n-octyl phthalate	ND		1.95	1.57		ug/L		80	70 - 130
Endosulfan I (Alpha)	ND		1.95	1.96		ug/L		100	70 - 130
Endosulfan II (Beta)	ND	F1	1.95	2.67	F1	ug/L		137	70 - 130
Endosulfan sulfate	ND		1.95	2.45		ug/L		125	70 - 130
Endrin	ND		1.95	2.53		ug/L		129	70 - 130
Endrin aldehyde	ND		1.95	1.87		ug/L		96	70 - 130
EPTC	ND		1.95	1.70		ug/L		87	70 - 130
Fluoranthene	ND		1.95	2.23		ug/L		114	70 - 130
Fluorene	ND		1.95	1.97		ug/L		101	70 - 130
gamma-Chlordane	ND		1.95	2.16		ug/L		111	70 - 130
Heptachlor	ND		1.95	1.84		ug/L		94	70 - 130
Heptachlor epoxide (isomer B)	ND		1.95	1.81		ug/L		93	70 - 130
Hexachlorobenzene	ND		1.95	2.04		ug/L		104	70 - 130
Hexachlorocyclopentadiene	ND		1.95	1.39		ug/L		71	70 - 130
Indeno[1,2,3-cd]pyrene	ND		1.95	2.05		ug/L		105	70 - 130
Isophorone	ND		1.95	1.52		ug/L		78	70 - 130
Lindane	ND		1.95	2.54		ug/L		130	70 - 130
Malathion	ND		1.95	2.34		ug/L		120	70 - 130
Methoxychlor	ND		1.95	1.83		ug/L		94	70 - 130
Metolachlor	ND		1.95	2.29		ug/L		117	70 - 130
Metribuzin	ND	^3+	1.95	1.96		ug/L		100	70 - 130
Molinate	ND		1.95	2.07		ug/L		106	70 - 130
Naphthalene	ND		1.95	1.58		ug/L		81	70 - 130
Parathion	ND		1.95	2.30		ug/L		118	70 - 130
Pendimethalin (Penoxaline)	ND		1.95	2.01		ug/L		103	70 - 130
Phenanthrene	ND		1.95	1.81		ug/L		93	70 - 130
Propachlor	ND	F1	1.95	2.68	F1	ug/L		137	70 - 130
Pyrene	ND		1.95	2.19		ug/L		112	70 - 130
Simazine	ND	F1	1.95	3.26	F1	ug/L		167	70 - 130
Terbacil	ND		1.95	2.41		ug/L		124	70 - 130
Terbuthylazine	ND	F1	1.95	2.97	F1	ug/L		152	70 - 130
Thiobencarb	ND		1.95	2.50		ug/L		128	70 - 130
trans-Nonachlor	ND		1.95	2.00		ug/L		102	70 - 130
Trifluralin	ND		1.95	2.27		ug/L		116	70 - 130

Method: 525.2 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 380-25725-B-1-A MS
Matrix: Water
Analysis Batch: 22756

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 22573

Surrogate	MS %Recovery	MS Qualifier	Limits
2-Nitro-m-xylene	*84*		*70 - 130*
Triphenylphosphate	*129*		*70 - 130*
Perylene-d12	*95*		*70 - 130*

Lab Sample ID: 380-25919-B-1-A DU
Matrix: Water
Analysis Batch: 22756

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 22573

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
2,4'-DDD	ND			ND		ug/L				NC	20
2,4'-DDE	ND			ND		ug/L				NC	20
2,4'-DDT	ND			ND		ug/L				NC	20
2,4-Dinitrotoluene	ND			ND		ug/L				NC	20
2,6-Dinitrotoluene	ND			ND		ug/L				NC	20
4,4'-DDD	ND			ND		ug/L				NC	20
4,4'-DDE	ND			ND		ug/L				NC	20
4,4'-DDT	ND			ND		ug/L				NC	20
Acenaphthene	ND			ND		ug/L				NC	20
Acenaphthylene	ND			ND		ug/L				NC	20
Acetochlor	ND			ND		ug/L				NC	20
Alachlor	ND			ND		ug/L				NC	20
alpha-BHC	ND			ND		ug/L				NC	20
alpha-Chlordane	ND			ND		ug/L				NC	20
Anthracene	ND			ND		ug/L				NC	20
Atrazine	ND			ND		ug/L				NC	20
Benz(a)anthracene	ND			ND		ug/L				NC	20
Benzo[a]pyrene	ND			ND		ug/L				NC	20
Benzo[b]fluoranthene	ND			ND		ug/L				NC	20
Benzo[g,h,i]perylene	ND			ND		ug/L				NC	20
Benzo[k]fluoranthene	ND			ND		ug/L				NC	20
beta-BHC	ND			ND		ug/L				NC	20
Bromacil	ND			ND		ug/L				NC	20
Butachlor	ND			ND		ug/L				NC	20
Butylbenzylphthalate	ND			ND		ug/L				NC	20
Caffeine	ND			ND		ug/L				NC	20
Chlorobenzilate	ND			ND		ug/L				NC	20
Chloroneb	ND			ND		ug/L				NC	20
Chlorothalonil (Draconil, Bravo)	ND			ND		ug/L				NC	20
Chlorpyrifos	ND			ND		ug/L				NC	20
Chrysene	ND			ND		ug/L				NC	20
delta-BHC	ND			ND		ug/L				NC	20
Di(2-ethylhexyl)adipate	ND	B ^3+		ND	B	ug/L				NC	20
Bis(2-ethylhexyl) phthalate	ND			ND		ug/L				NC	20
Diazinon (Qualitative)	ND			ND		ug/L				NC	20
Dibenz(a,h)anthracene	ND			ND		ug/L				NC	20
Diclorvos (DDVP)	ND			ND		ug/L				NC	20
Dieldrin	ND			ND		ug/L				NC	20
Diethylphthalate	ND			ND		ug/L				NC	20

Method: 525.2 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 380-25919-B-1-A DU
Matrix: Water
Analysis Batch: 22756

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 22573

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Dimethoate	ND			ND		ug/L				NC	20
Dimethylphthalate	ND			ND		ug/L				NC	20
Di-n-butyl phthalate	ND			ND		ug/L				NC	20
Di-n-octyl phthalate	ND			ND		ug/L				NC	20
Endosulfan I (Alpha)	ND			ND		ug/L				NC	20
Endosulfan II (Beta)	ND			ND		ug/L				NC	20
Endosulfan sulfate	ND			ND		ug/L				NC	20
Endrin	ND			ND		ug/L				NC	20
Endrin aldehyde	ND			ND		ug/L				NC	20
EPTC	ND			ND		ug/L				NC	20
Fluoranthene	ND			ND		ug/L				NC	20
Fluorene	ND			ND		ug/L				NC	20
gamma-Chlordane	ND			ND		ug/L				NC	20
Heptachlor	ND			ND		ug/L				NC	20
Heptachlor epoxide (isomer B)	ND			ND		ug/L				NC	20
Hexachlorobenzene	ND			ND		ug/L				NC	20
Hexachlorocyclopentadiene	ND			ND		ug/L				NC	20
Indeno[1,2,3-cd]pyrene	ND			ND		ug/L				NC	20
Isophorone	ND			ND		ug/L				NC	20
Lindane	ND			ND		ug/L				NC	20
Malathion	ND			ND		ug/L				NC	20
Methoxychlor	ND			ND		ug/L				NC	20
Metolachlor	ND			ND		ug/L				NC	20
Metribuzin	ND	^3+		ND		ug/L				NC	20
Molinate	ND			ND		ug/L				NC	20
Naphthalene	ND			ND		ug/L				NC	20
Parathion	ND			ND		ug/L				NC	20
Pendimethalin (Penoxaline)	ND			ND		ug/L				NC	20
Total Permethrin (mixed isomers)	ND			ND		ug/L				NC	20
Phenanthrene	ND			ND		ug/L				NC	20
Propachlor	ND			ND		ug/L				NC	20
Pyrene	ND			ND		ug/L				NC	20
Simazine	ND			ND		ug/L				NC	20
Terbacil	ND			ND		ug/L				NC	20
Terbuthylazine	ND			ND		ug/L				NC	20
Thiobencarb	ND			ND		ug/L				NC	20
trans-Nonachlor	ND			ND		ug/L				NC	20
Trifluralin	ND			ND		ug/L				NC	20

Surrogate	*DU %Recovery*	*DU Qualifier*	*Limits*
2-Nitro-m-xylene	*104*		*70 - 130*
Triphenylphosphate	*95*		*70 - 130*
Perylene-d12	*110*		*70 - 130*

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

Lab Sample ID: 101128-B1
Matrix: BlankMatrix
Analysis Batch: O-40010

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: O-40010_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 00:32	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 00:32	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 00:32	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 00:32	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 00:32	1
Acenaphthene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 00:32	1
Acenaphthylene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 00:32	1
Anthracene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 00:32	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 00:32	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 00:32	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 00:32	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 00:32	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 00:32	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 00:32	1
Biphenyl	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 00:32	1
Chrysene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 00:32	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 00:32	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 00:32	1
Dibenzothiophene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 00:32	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		10/31/22 00:00	11/15/22 00:32	1
Fluoranthene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 00:32	1
Fluorene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 00:32	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 00:32	1
Naphthalene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 00:32	1
Perylene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 00:32	1
Phenanthrene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 00:32	1
Pyrene	ND		0.005	0.001	µg/L		10/31/22 00:00	11/15/22 00:32	1

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
(d10-Acenaphthene)	*84*		*27 - 133*	*10/31/22 00:00*	*11/15/22 00:32*	*1*
(d10-Phenanthrene)	*85*		*43 - 129*	*10/31/22 00:00*	*11/15/22 00:32*	*1*
(d12-Chrysene)	*111*		*52 - 144*	*10/31/22 00:00*	*11/15/22 00:32*	*1*
(d12-Perylene)	*87*		*36 - 161*	*10/31/22 00:00*	*11/15/22 00:32*	*1*
(d8-Naphthalene)	*59*		*25 - 125*	*10/31/22 00:00*	*11/15/22 00:32*	*1*

Lab Sample ID: 101128-BS1
Matrix: BlankMatrix
Analysis Batch: O-40010

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: O-40010_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1-Methylnaphthalene	0.5	0.333		µg/L		67	31 - 128
1-Methylphenanthrene	0.5	0.468		µg/L		94	66 - 127
2,3,5-Trimethylnaphthalene	0.5	0.454		µg/L		91	55 - 122
2,6-Dimethylnaphthalene	0.5	0.355		µg/L		71	48 - 120
2-Methylnaphthalene	0.5	0.418		µg/L		84	47 - 130
Acenaphthene	0.5	0.436		µg/L		87	53 - 131
Acenaphthylene	0.5	0.377		µg/L		75	43 - 140
Anthracene	0.5	0.457		µg/L		91	58 - 135

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

Lab Sample ID: 101128-BS1
Matrix: BlankMatrix
Analysis Batch: O-40010

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: O-40010_P

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benz[a]anthracene			0.5	0.383		µg/L		77	55 - 145		
Benzo[a]pyrene			0.5	0.418		µg/L		84	51 - 143		
Benzo[b]fluoranthene			0.5	0.498		µg/L		100	46 - 165		
Benzo[e]pyrene			0.5	0.488		µg/L		98	42 - 152		
Benzo[g,h,i]perylene			0.5	0.449		µg/L		90	63 - 133		
Benzo[k]fluoranthene			0.5	0.493		µg/L		99	56 - 145		
Biphenyl			0.5	0.363		µg/L		73	56 - 119		
Chrysene			0.5	0.409		µg/L		82	56 - 141		
Dibenz[a,h]anthracene			0.5	0.471		µg/L		94	55 - 150		
Dibenzo[a,l]pyrene			0.25	0.163		µg/L		65	50 - 150		
Dibenzothiophene			0.5	0.452		µg/L		90	75 - 113		
Disalicylidenepropanediamine			50	24.8		µg/L		50	50 - 150		
Fluoranthene			0.5	0.394		µg/L		79	60 - 146		
Fluorene			0.5	0.443		µg/L		89	58 - 131		
Indeno[1,2,3-cd]pyrene			0.5	0.479		µg/L		96	50 - 151		
Naphthalene			0.5	0.349		µg/L		70	41 - 126		
Perylene			0.5	0.463		µg/L		93	48 - 141		
Phenanthrene			0.5	0.478		µg/L		96	67 - 127		
Pyrene			0.5	0.369		µg/L		74	54 - 156		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
(d10-Acenaphthene)	*86*		*27 - 133*
(d10-Phenanthrene)	*94*		*43 - 129*
(d12-Chrysene)	*89*		*52 - 144*
(d12-Perylene)	*90*		*36 - 161*
(d8-Naphthalene)	*69*		*25 - 125*

Lab Sample ID: 101128-BS2
Matrix: BlankMatrix
Analysis Batch: O-40010

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: O-40010_P

Analyte			Spike Added	LCS DUP Result	LCS DUP Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1-Methylnaphthalene			0.5	0.315		µg/L		63	31 - 128	6	30
1-Methylphenanthrene			0.5	0.449		µg/L		90	66 - 127	4	30
2,3,5-Trimethylnaphthalene			0.5	0.411		µg/L		82	55 - 122	10	30
2,6-Dimethylnaphthalene			0.5	0.396		µg/L		79	48 - 120	11	30
2-Methylnaphthalene			0.5	0.34		µg/L		68	47 - 130	21	30
Acenaphthene			0.5	0.404		µg/L		81	53 - 131	7	30
Acenaphthylene			0.5	0.408		µg/L		82	43 - 140	9	30
Anthracene			0.5	0.445		µg/L		89	58 - 135	2	30
Benz[a]anthracene			0.5	0.384		µg/L		77	55 - 145	0	30
Benzo[a]pyrene			0.5	0.41		µg/L		82	51 - 143	2	30
Benzo[b]fluoranthene			0.5	0.509		µg/L		102	46 - 165	2	30
Benzo[e]pyrene			0.5	0.479		µg/L		96	42 - 152	2	30
Benzo[g,h,i]perylene			0.5	0.426		µg/L		85	63 - 133	6	30
Benzo[k]fluoranthene			0.5	0.482		µg/L		96	56 - 145	3	30
Biphenyl			0.5	0.393		µg/L		79	56 - 119	8	30
Chrysene			0.5	0.411		µg/L		82	56 - 141	0	30

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

Lab Sample ID: 101128-BS2
Matrix: BlankMatrix
Analysis Batch: O-40010

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: O-40010_P

Analyte			Spike Added	LCS DUP Result	LCS DUP Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Dibenz[a,h]anthracene			0.5	0.499		µg/L		100	55 - 150	6	30
Dibenzo[a,l]pyrene			0.25	0.134		µg/L		54	50 - 150	18	30
Dibenzothiophene			0.5	0.443		µg/L		89	75 - 113	1	30
Disalicylidenepropanediamine			50	25.5		µg/L		51	50 - 150	2	30
Fluoranthene			0.5	0.468		µg/L		94	60 - 146	17	30
Fluorene			0.5	0.411		µg/L		82	58 - 131	8	30
Indeno[1,2,3-cd]pyrene			0.5	0.48		µg/L		96	50 - 151	0	30
Naphthalene			0.5	0.364		µg/L		73	41 - 126	4	30
Perylene			0.5	0.465		µg/L		93	48 - 141	0	30
Phenanthrene			0.5	0.449		µg/L		90	67 - 127	6	30
Pyrene			0.5	0.457		µg/L		91	54 - 156	21	30

Surrogate	*LCS DUP %Recovery*	*LCS DUP Qualifier*	*Limits*
(d10-Acenaphthene)	*81*		*27 - 133*
(d10-Phenanthrene)	*91*		*43 - 129*
(d12-Chrysene)	*89*		*52 - 144*
(d12-Perylene)	*88*		*36 - 161*
(d8-Naphthalene)	*72*		*25 - 125*

Method: 8015 Gas (Purgeable) LL (EAL) - SW846 8015B Gasoline Range Organics

Lab Sample ID: 22VGH7J14B
Matrix: WATER
Analysis Batch: 22VGH7J14

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GASOLINE	ND	U	0.020		mg/L			10/28/22 13:26	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
BROMOFLUOROBENZENE					*10/28/22 13:26*	*1*

Lab Sample ID: 22VGH7J14L
Matrix: WATER
Analysis Batch: 22VGH7J14

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
GASOLINE			0.500	0.412		mg/L		82	60 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
BROMOFLUOROBENZENE	*101*		*70 - 130*

Method: 8015 LL DRO/MRO/JP5/JP8 - 8015 - TPH DRO/ORO

Lab Sample ID: 22DSJ059WB
Matrix: WATER
Analysis Batch: 22DSJ059W

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DIESEL	ND	U	0.025		mg/L			10/28/22 16:13	1
JP5	ND	U	0.050		mg/L			10/28/22 16:13	1
JP8	ND	U	0.050		mg/L			10/28/22 16:13	1
MOTOR OIL	ND	U	0.050		mg/L			10/28/22 16:13	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
BROMOBENZENE					*10/28/22 16:13*	*1*
HEXACOSANE					*10/28/22 16:13*	*1*

Lab Sample ID: 22DSJ059WL
Matrix: WATER
Analysis Batch: 22DSJ059W

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
DIESEL			2.50	2.70		mg/L		108	50 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
BROMOBENZENE	*104*		*60 - 130*
HEXACOSANE	*106*		*60 - 130*

Lab Sample ID: 22J5J059WL
Matrix: WATER
Analysis Batch: 22DSJ059W

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
JP5			2.50	2.56		mg/L		102	30 - 160		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
BROMOBENZENE	*91*		*60 - 130*
HEXACOSANE	*98*		*60 - 130*

Lab Sample ID: 22J8J059WL
Matrix: WATER
Analysis Batch: 22DSJ059W

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
JP8			2.50	2.97		mg/L		119	30 - 160		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
BROMOBENZENE	*96*		*60 - 130*
HEXACOSANE	*97*		*60 - 130*

GC/MS Semi VOA

Prep Batch: 22573

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-25927-1	HALAWA SHAFT VIEWING POOL	Total/NA	Drinking Water	525.2	
MB 380-22573/1-A	Method Blank	Total/NA	Water	525.2	
LCS 380-22573/3-A	Lab Control Sample	Total/NA	Water	525.2	
LCSD 380-22573/4-A	Lab Control Sample Dup	Total/NA	Water	525.2	
MRL 380-22573/2-A	Lab Control Sample	Total/NA	Water	525.2	
380-25725-B-1-A MS	Matrix Spike	Total/NA	Water	525.2	
380-25919-B-1-A DU	Duplicate	Total/NA	Water	525.2	

Analysis Batch: 22756

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-25927-1	HALAWA SHAFT VIEWING POOL	Total/NA	Drinking Water	525.2	22573
MB 380-22573/1-A	Method Blank	Total/NA	Water	525.2	22573
LCS 380-22573/3-A	Lab Control Sample	Total/NA	Water	525.2	22573
LCSD 380-22573/4-A	Lab Control Sample Dup	Total/NA	Water	525.2	22573
MRL 380-22573/2-A	Lab Control Sample	Total/NA	Water	525.2	22573
380-25725-B-1-A MS	Matrix Spike	Total/NA	Water	525.2	22573
380-25919-B-1-A DU	Duplicate	Total/NA	Water	525.2	22573

Subcontract

Analysis Batch: O-40010

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-25927-1	HALAWA SHAFT VIEWING POOL	Total/NA	Drinking Water	625 PAH Physis LL (EAL) + TICs	O-40010_P
101128-B1	Method Blank	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-40010_P
101128-BS1	Lab Control Sample	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-40010_P
101128-BS2	Lab Control Sample Dup	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-40010_P

Analysis Batch: 22DSJ059W

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-25927-1	HALAWA SHAFT VIEWING POOL	Total/NA	Drinking Water	8015 LL DRO/MRO/JP5/JP8	
22DSJ059WB	Method Blank	Total/NA	WATER	8015 LL DRO/MRO/JP5/JP8	
22DSJ059WL	Lab Control Sample	Total/NA	WATER	8015 LL DRO/MRO/JP5/JP8	
22J5J059WL	Lab Control Sample	Total/NA	WATER	8015 LL DRO/MRO/JP5/JP8	
22J8J059WL	Lab Control Sample	Total/NA	WATER	8015 LL DRO/MRO/JP5/JP8	

Analysis Batch: 22VGH7J14

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-25927-1	HALAWA SHAFT VIEWING POOL	Total/NA	Drinking Water	8015 Gas (Purgeable) LL (EAL)	

Subcontract (Continued)

Analysis Batch: 22VGH7J14 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-25927-2	TB HALAWA SHAFT VIEWING POOL	Total/NA	Drinking Water	8015 Gas (Purgeable) LL (EAL)	
22VGH7J14B	Method Blank	Total/NA	WATER	8015 Gas (Purgeable) LL (EAL)	
22VGH7J14L	Lab Control Sample	Total/NA	WATER	8015 Gas (Purgeable) LL (EAL)	

Prep Batch: O-40010_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-25927-1	HALAWA SHAFT VIEWING POOL	Total/NA	Drinking Water	EPA_625	
101128-B1	Method Blank	Total/NA	BlankMatrix	EPA_625	
101128-BS1	Lab Control Sample	Total/NA	BlankMatrix	EPA_625	
101128-BS2	Lab Control Sample Dup	Total/NA	BlankMatrix	EPA_625	

Lab Chronicle

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

Job ID: 380-25927-1

Client Sample ID: HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-25927-1

Date Collected: 10/24/22 09:30

Matrix: Drinking Water

Date Received: 10/26/22 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	525.2			22573	N8NE	EA MON	10/29/22 13:30
Total/NA	Analysis	525.2		1	22756	Q8LA	EA MON	11/01/22 20:52
Total/NA	Prep	EPA_625		1	O-40010_P			10/31/22 00:00
Total/NA	Analysis	625 PAH Physis LL (EAL) + TICs		1	O-40010	YC		11/15/22 12:29
Total/NA	Analysis	8015 Gas (Purgeable) LL (EAL)		1	22VGH7J14	SCerva		10/28/22 17:45
Total/NA	Analysis	8015 LL DRO/MRO/JP5/JP8		1	22DSJ059W	SDees		10/28/22 20:31

Client Sample ID: TB HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-25927-2

Date Collected: 10/24/22 09:30

Matrix: Drinking Water

Date Received: 10/26/22 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015 Gas (Purgeable) LL (EAL)		1	22VGH7J14	SCerva		10/28/22 18:21

Laboratory References:

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

EA MON = Eurofins Eaton Monrovia, 750 Royal Oaks Drive, Suite 100, Monrovia, CA 91016, TEL (626)386-1100

Accreditation/Certification Summary

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

Job ID: 380-25927-1

Laboratory: Eurofins Eaton Monrovia

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Hawaii	State	CA00006	01-31-23

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
525.2	525.2	Drinking Water	2,4'-DDD
525.2	525.2	Drinking Water	2,4'-DDE
525.2	525.2	Drinking Water	2,4'-DDT
525.2	525.2	Drinking Water	2,4-Dinitrotoluene
525.2	525.2	Drinking Water	2,6-Dinitrotoluene
525.2	525.2	Drinking Water	4,4'-DDD
525.2	525.2	Drinking Water	4,4'-DDE
525.2	525.2	Drinking Water	4,4'-DDT
525.2	525.2	Drinking Water	Acenaphthene
525.2	525.2	Drinking Water	Acenaphthylene
525.2	525.2	Drinking Water	Acetochlor
525.2	525.2	Drinking Water	alpha-BHC
525.2	525.2	Drinking Water	alpha-Chlordane
525.2	525.2	Drinking Water	Anthracene
525.2	525.2	Drinking Water	Benz(a)anthracene
525.2	525.2	Drinking Water	Benzo[b]fluoranthene
525.2	525.2	Drinking Water	Benzo[g,h,i]perylene
525.2	525.2	Drinking Water	Benzo[k]fluoranthene
525.2	525.2	Drinking Water	beta-BHC
525.2	525.2	Drinking Water	Bromacil
525.2	525.2	Drinking Water	Butylbenzylphthalate
525.2	525.2	Drinking Water	Caffeine
525.2	525.2	Drinking Water	Chlorobenzilate
525.2	525.2	Drinking Water	Chloroneb
525.2	525.2	Drinking Water	Chlorothalonil (Draconil, Bravo)
525.2	525.2	Drinking Water	Chlorpyrifos
525.2	525.2	Drinking Water	Chrysene
525.2	525.2	Drinking Water	delta-BHC
525.2	525.2	Drinking Water	Diazinon (Qualitative)
525.2	525.2	Drinking Water	Dibenz(a,h)anthracene
525.2	525.2	Drinking Water	Diclorvos (DDVP)
525.2	525.2	Drinking Water	Diethylphthalate
525.2	525.2	Drinking Water	Dimethoate
525.2	525.2	Drinking Water	Dimethylphthalate
525.2	525.2	Drinking Water	Di-n-butyl phthalate
525.2	525.2	Drinking Water	Di-n-octyl phthalate
525.2	525.2	Drinking Water	Endosulfan I (Alpha)
525.2	525.2	Drinking Water	Endosulfan II (Beta)
525.2	525.2	Drinking Water	Endosulfan sulfate
525.2	525.2	Drinking Water	Endrin aldehyde
525.2	525.2	Drinking Water	EPTC
525.2	525.2	Drinking Water	Fluoranthene
525.2	525.2	Drinking Water	Fluorene
525.2	525.2	Drinking Water	gamma-Chlordane
525.2	525.2	Drinking Water	Indeno[1,2,3-cd]pyrene

Laboratory: Eurofins Eaton Monrovia (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
525.2	525.2	Drinking Water	Isophorone
525.2	525.2	Drinking Water	Malathion
525.2	525.2	Drinking Water	Molinate
525.2	525.2	Drinking Water	Naphthalene
525.2	525.2	Drinking Water	Parathion
525.2	525.2	Drinking Water	Pendimethalin (Penoxaline)
525.2	525.2	Drinking Water	Phenanthrene
525.2	525.2	Drinking Water	Pyrene
525.2	525.2	Drinking Water	Terbacil
525.2	525.2	Drinking Water	Terbuthylazine
525.2	525.2	Drinking Water	Thiobencarb
525.2	525.2	Drinking Water	Total Permethrin (mixed isomers)
525.2	525.2	Drinking Water	trans-Nonachlor
525.2	525.2	Drinking Water	Trifluralin

Method Summary

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

Job ID: 380-25927-1

Method	Method Description	Protocol	Laboratory
525.2	Semivolatile Organic Compounds (GC/MS)	EPA	EA MON
625	EPA 625 Base/Neutral and Acid Organics i	EPA	
8015	8015 - TPH DRO/ORO	EPA	
8015B	SW846 8015B Gasoline Range Organics	SW846	
525.2	Extraction of Semivolatile Compounds	EPA	EA MON

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

EA MON = Eurofins Eaton Monrovia, 750 Royal Oaks Drive, Suite 100, Monrovia, CA 91016, TEL (626)386-1100

Sample Summary

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

Job ID: 380-25927-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	PWSID Number
380-25927-1	HALAWA SHAFT VIEWING POOL	Drinking Water	10/24/22 09:30	10/26/22 10:00	HI0000331
380-25927-2	TB HALAWA SHAFT VIEWING POOL	Drinking Water	10/24/22 09:30	10/26/22 10:00	

EMAX LABORATORIES, INC.
3051 Fujita Street
Torrance, CA 90505
Tel: (310)-618-8889

Date: 11-21-2022
EMAX Batch No.: 22J367

Attn: Jackie Contreras

Eurofins Eaton Analytical
750 Royal Oaks Dr., Suite 100
Monrovia, CA 91016-3629

Subject: Laboratory Report
Project: 380-25927

Enclosed is the Laboratory report for samples received on 10/27/22.
The data reported relate only to samples listed below :

Sample ID	Control #	Col Date	Matrix	Analysis
380-25927-1	J367-01	10/24/22	WATER	TPH GASOLINE TPH
380-25927-2	J367-02	10/24/22	WATER	TPH GASOLINE

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning
these results.

Sincerely yours,

Caspar J. Pang
Laboratory Director

EMAX certifies that results included in this report meets all TNI & DOD requirements unless noted in the Case Narrative.

NELAP Accredited Certificate Number CA002912022-22
ANAB Accredited DoD ELAP and ISO/IEC 17025 Certificate Number L2278 Testing
California ELAP Accredited Certificate Number 2672

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

22J367

Chain of Custody Record

eurofins | Environment Testing

12/16/2022

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arada, Rachelle	Carrier Tracking No(s):	COC No: 380-26443.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Rachelle.Arada@et.eurofinsus.com	State of Origin: Hawaii	Page: Page 1 of 1
Company: EMAX Laboratories Inc		Accreditations Required (See note): State - Hawaii		Job #: 380-25927-1
Address: 3051 Fujita Street, ,	Due Date Requested: 11/9/2022			
City: Torrance	TAT Requested (days):			
State, Zip: CA, 90505				
Phone:	PO #:			
Email:	WO #:			
Project Name: RED-HILL	Project #: 38001111			
Site: Honolulu BWS Sites	SSOW#:			

Analysis 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:

	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 (8015 Gas (Purgeable) LL (EAL))/ 8015 Gas (Purgeable) LL (EAL)	SUB (8015 LL DRO/MRO/JP5/JP8)/ 8015 LL DRO/MRO/JP5/JP8	Total Number of containers	Special Instructions/Note:
				Preservation Code:							
1	HALAWA SHAFT VIEWING POOL (380-25927-1)	10/24/22	09:30 Hawaiian		Water			X	X	6	See Attached Instructions
2	TB HALAWA SHAFT VIEWING POOL (380-25927-2)	10/24/22	09:30 Hawaiian		Water			X		2	See Attached Instructions

Note: Since laboratory accreditations are subject to change, Eurofins Eaton Analytical, LLC places the ownership of method, analyte & accreditation compliance upon out 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
1	Albert	10-27-22 1410		Albert	10-27-22 12:	EEA
2	Albert	10-27-22 1410			10/27/22 14:10	EMAX
3						

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 3.6°

SAMPLE RECEIPT FORM 1

EMAX LABORATORIES, INC.

Type of Delivery	Airbill / Tracking Number	ECN 22J367
☐ Fedex ☐ UPS ☐ GSO ☐ Others		Recipient Jocelyne Solis-Ramos
☐ EMAX Courier ☑ Client Delivery		Date 10/27/22 Time 14:10

COC INSPECTION

☑ Client Name	☑ Client PM/FC	☐ Sampler Name	☑ Sampling Date/Time	☑ Sample ID	☑ Matrix
☑ Address	☐ Tel # / Fax #	☐ Courier Signature	☑ Analysis Required	☐ Preservative (if any)	☑ TAT
Safety Issues (if any)	☐ High concentrations expected	☐ From Superfund Site	☐ Rad screening required		

Note: _____

PACKAGING INSPECTION

Container	☑ Cooler	☐ Box	☐ Other		
Condition	☐ Custody Seal	☐ Intact	☐ Damaged		
Packaging	☑ Bubble Pack	☐ Styrofoam	☐ Popcorn	☐ Sufficient	☐ _____
Temperatures (Cool, ≤6 °C but not frozen)	☑ Cooler 1 3.6 °C	☐ Cooler 2 _____ °C	☐ Cooler 3 _____ °C	☐ Cooler 4 _____ °C	☐ Cooler 5 _____ °C
	☐ Cooler 6 _____ °C	☐ Cooler 7 _____ °C	☐ Cooler 8 _____ °C	☐ Cooler 9 _____ °C	☐ Cooler 10 _____ °C
Thermometer:	*A - S/N* _____	*B - S/N* 210760237	*C - S/N* _____	*D - S/N* 210760272	

Comments: ☐ Temperature is out of range. PM was informed IMMEDIATELY.

Note: _____

DISCREPANCIES

LabSampleID	LabSampleContainerID	Code	ClientSample Label ID / Information	Corrective Action
1	5,6	D2	JPS/JPB not indicated on label	R1

10/27/22

☐ pH holding time requirement for water samples is 15 mins. Water samples for pH analysis are received beyond 15 minutes from sampling time. MB 10/31/22

NOTES/OBSERVATIONS:

SAMPLE MATRIX IS DRINKING WATER? ☐ YES ☐ NO

☐ Continue to next page.

LEGEND:

Code	Description- Sample Management
D1	Analysis is not indicated in _____
(D2)	Analysis mismatch COC vs label
D3	Sample ID mismatch COC vs label
D4	Sample ID is not indicated in _____
D5	Container -[improper] [leaking] [broken]
D6	Date/Time is not indicated in _____
D7	Date/Time mismatch COC vs label
D8	Sample listed in COC is not received
D9	Sample received is not listed in COC
D10	No initial/date on corrections in COC/label
D11	Container count mismatch COC vs received
D12	Container size mismatch COC vs received

Code	Description-Sample Management
D13	Out of Holding Time
D14	Bubble is >6mm
D15	No trip blank in cooler
D16	Preservation not indicated in _____
D17	Preservation mismatch COC vs label
D18	Insufficient chemical preservative
D19	Insufficient Sample
D20	No filtration info for dissolved analysis
D21	No sample for moisture determination
D22	_____
D23	_____
D24	_____

Code	Description-Sample Management
R1	Proceed as indicated in ☒ COC ☐ Label
R2	Refer to attached instruction
R3	Cancel the analysis
R4	Use vial with smallest bubble first
R5	Log-in with latest sampling date and time+1 min
R6	Adjust pH as necessary
R7	Filter and preserved as necessary
R8	_____
R9	_____
R10	_____
R11	_____
R12	_____

REVIEWS:

Sample Labeling Jocelyne Solis-Ramos / Date 10/27/22 10/27/22

SRF Date 10/27/22

PM MB Date 10/31/22

REPORTING CONVENTIONS

DATA QUALIFIERS:

Lab Qualifier	AFCEE Qualifier	Description
J	F	Indicates that the analyte is positively identified and the result is less than RL but greater than MDL.
N		Indicates presumptive evidence of a compound.
B	B	Indicates that the analyte is found in the associated method blank as well as in the sample at above QC level.
E	J	Indicates that the result is above the maximum calibration range or estimated value.
*	*	Out of QC limit.

Note: The above qualifiers are used to flag the results unless the project requires a different set of qualification criteria.

ACRONYMS AND ABBREVIATIONS:

CRDL	Contract Required Detection Limit
RL	Reporting Limit
MRL	Method Reporting Limit
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
DO	Diluted out

DATES

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.

LABORATORY REPORT FOR

EUROFINS EATON ANALYTICAL

380-25927

METHOD 5030B/8015B
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

SDG#: 22J367

CASE NARRATIVE

Client : EUROFINS EATON ANALYTICAL

Project: 380-25927

SDG : 22J367

METHOD 5030B/8015B
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

A total of two(2) water samples were received on 10/27/22 to be analyzed for Total Petroleum Hydrocarbons by Purge and Trap in accordance with Method 5030B/8015B and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source (ICV). Continuing calibration (CCV) verifications were carried out on a frequency specified by the project. All calibration requirements were within acceptance criteria. Refer to calibration summary forms of ICAL, ICV and CCV for details. MRL was analyzed as required by the project. Refer to MRL summary form for details.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. VGH7J14B - result was compliant to project requirement. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. VGH7J14L/VGH7J14C were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
Matrix spike sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of MS/MSD was analyzed. Gasoline was within MS QC limits in J366-01M/J366-01S. Refer to Matrix QC summary form for details.

Surrogate
Surrogate was added on QC and field samples. All surrogate recoveries were within QC limits. Refer to sample result summary forms for details.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

LAB CHRONICLE
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client : EUROFINS EATON ANALYTICAL
Project : 380-25927
SDG NO. : 22J367
Instrument ID : H7

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	VGH7J14B	1	NA	10/28/2213:26	10/28/2213:26	AJ28005A	AJ28004A	22VGH7J14	Method Blank
LCS1W	VGH7J14L	1	NA	10/28/2214:02	10/28/2214:02	AJ28006A	AJ28004A	22VGH7J14	Lab Control Sample (LCS)
LCD1W	VGH7J14C	1	NA	10/28/2214:39	10/28/2214:39	AJ28007A	AJ28004A	22VGH7J14	LCS Duplicate
380-25927-1	J367-01	1	NA	10/28/2217:45	10/28/2217:45	AJ28012A	AJ28004A	22VGH7J14	Field Sample
380-25927-2	J367-02	1	NA	10/28/2218:21	10/28/2218:21	AJ28013A	AJ28004A	22VGH7J14	Field Sample

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

METHOD 5030B/8015B
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: EUROFINS EATON ANALYTICAL	Date Collected:	10/24/22 09:30
Project	: 380-25927	Date Received:	10/27/22
Batch No.	: 22J367	Date Extracted:	10/28/22 17:45
Sample ID	: 380-25927-1	Date Analyzed:	10/28/22 17:45
Lab Samp ID:	J367-01	Dilution Factor:	1
Lab File ID:	AJ28012A	Matrix:	WATER
Ext Btch ID:	22VGH7J14	% Moisture:	NA
Calib. Ref.:	AJ28004A	Instrument ID:	H7

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	0.020	0.010

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromofluorobenzene	0.0368	0.0400	92	60-140

Notes:

Parameter	H-C Range
Gasoline	C6-C10

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

Sample Amount	: 5ml	Final Volume	: 5ml
Prepared by	: SCerva	Analyzed by	: SCerva

METHOD 5030B/8015B
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: EUROFINS EATON ANALYTICAL	Date Collected:	10/24/22 09:30
Project	: 380-25927	Date Received:	10/27/22
Batch No.	: 22J367	Date Extracted:	10/28/22 18:21
Sample ID	: 380-25927-2	Date Analyzed:	10/28/22 18:21
Lab Samp ID:	J367-02	Dilution Factor:	1
Lab File ID:	AJ28013A	Matrix:	WATER
Ext Btch ID:	22VGH7J14	% Moisture:	NA
Calib. Ref.:	AJ28004A	Instrument ID:	H7

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	0.020	0.010

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromofluorobenzene	0.0387	0.0400	97	60-140

Notes:
Parameter H-C Range
Gasoline C6-C10
Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.
Sample Amount : 5ml Final Volume : 5ml
Prepared by : SCerva Analyzed by : SCerva

QC SUMMARIES

METHOD 5030B/8015B
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client	: EUROFINS EATON ANALYTICAL	Date Collected:	10/28/22 13:26
Project	: 380-25927	Date Received:	10/28/22
Batch No.	: 22J367	Date Extracted:	10/28/22 13:26
Sample ID	: MBLK1W	Date Analyzed:	10/28/22 13:26
Lab Samp ID:	VGH7J14B	Dilution Factor:	1
Lab File ID:	AJ28005A	Matrix:	WATER
Ext Btch ID:	22VGH7J14	% Moisture:	NA
Calib. Ref.:	AJ28004A	Instrument ID:	H7

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	0.020	0.010

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromofluorobenzene	0.0355	0.0400	89	60-140

Notes:

Parameter	H-C Range
Gasoline	C6-C10

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

Sample Amount	: 5ml	Final Volume	: 5ml
Prepared by	: SCerva	Analyzed by	: SCerva

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL
PROJECT : 380-25927
BATCH NO. : 22J367
METHOD : 5030B/8015B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR	: 1	1	1
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: VGH7J14B	VGH7J14L	VGH7J14C
LAB FILE ID	: AJ28005A	AJ28006A	AJ28007A
DATE PREPARED	: 10/28/22 13:26	10/28/22 14:02	10/28/22 14:39
DATE ANALYZED	: 10/28/22 13:26	10/28/22 14:02	10/28/22 14:39
PREP BATCH	: 22VGH7J14	22VGH7J14	22VGH7J14
CALIBRATION REF	: AJ28004A	AJ28004A	AJ28004A

ACCESSION:

PARAMETERS	MBResult (mg/L)	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Gasoline	ND	0.500	0.412	82	0.500	0.433	87	5	60-130	30

SURROGATE PARAMETER	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	QCLimit (%)
Bromofluorobenzene	0.0400	0.0403	101	0.0400	0.0446	112	70-130

MB: Method Blank sample LCS: Lab Control Sample LCD: Lab Control Sample Duplicate

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL
PROJECT : 380-25919
BATCH NO. : 22J366
METHOD : 5030B/8015B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR	: 1	1	1
SAMPLE ID	: 380-25919-1	380-25919-1MS	380-25919-1MSD
LAB SAMPLE ID	: J366-01	J366-01M	J366-01S
LAB FILE ID	: AJ28008A	AJ28009A	AJ28010A
DATE PREPARED	: 10/28/22 15:17	10/28/22 15:54	10/28/22 16:31
DATE ANALYZED	: 10/28/22 15:17	10/28/22 15:54	10/28/22 16:31
PREP BATCH	: 22VGH7J14	22VGH7J14	22VGH7J14
CALIBRATION REF	: AJ28004A	AJ28004A	AJ28004A

ACCESSION:

PARAMETERS	PSResult (mg/L)	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Gasoline	ND	0.500	0.450	90	0.500	0.465	93	3	50-130	30

SURROGATE PARAMETER	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	QCLimit (%)
Bromofluorobenzene	0.0400	0.0471	118	0.0400	0.0480	120	60-140

PS: Parent Sample MS: Matrix Spike MSD: Matrix Spike Duplicate

LABORATORY REPORT FOR

EUROFINS EATON ANALYTICAL

380-25927

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

SDG#: 22J367

CASE NARRATIVE

Client : EUROFINS EATON ANALYTICAL

Project: 380-25927

SDG : 22J367

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

One(1) water sample was received on 10/27/22 to be analyzed for Total Petroleum Hydrocarbons by Extraction in accordance with Method 3520C/8015B and project specific requirements.

Holding Time
The sample was analyzed within the prescribed holding time.

Calibration
Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source (ICV). Continuing calibration (CCV) verifications were carried out on a frequency specified by the project. All calibration requirements were within acceptance criteria. Refer to calibration summary forms of ICAL, ICV and CCV for details. MRL was analyzed as required by the project. Refer to MRL summary form for details.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. DSJ059WB - result was compliant to project requirement. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. DSJ059WL/DSJ059WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
No matrix QC sample was provided on this SDG.

Surrogate
Surrogates were added on QC and field samples. All surrogate recoveries were within QC limits. Refer to sample result summary forms for details.

Sample Analysis
The sample was analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

CASE NARRATIVE

Client : EUROFINS EATON ANALYTICAL

Project: 380-25927

SDG : 22J367

METHOD 3520C/8015B
PETROLEUM HYDROCARBONS BY EXTRACTION

One(1) water sample was received on 10/27/22 to be analyzed for Petroleum Hydrocarbons by Extraction in accordance with Method 3520C/8015B and project specific requirements.

Holding Time
The sample was analyzed within the prescribed holding time.

Calibration
Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source (ICV). Continuing calibration (CCV) verifications were carried out on a frequency specified by the project. All calibration requirements were within acceptance criteria. Refer to calibration summary forms of ICAL, ICV and CCV for details. MRL was analyzed as required by the project. Refer to MRL summary form for details.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. DSJ059WB - result was compliant to project requirement. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. J5J059WL/J5J059WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
No matrix QC sample was provided on this SDG.

Surrogate
Surrogates were added on QC and field samples. All surrogate recoveries were within QC limits. Refer to sample result summary forms for details.

Sample Analysis
The sample was analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

CASE NARRATIVE

Client : EUROFINS EATON ANALYTICAL

Project: 380-25927

SDG : 22J367

METHOD 3520C/8015B
PETROLEUM HYDROCARBONS BY EXTRACTION

One(1) water sample was received on 10/27/22 to be analyzed for Petroleum Hydrocarbons by Extraction in accordance with Method 3520C/8015B and project specific requirements.

Holding Time
The sample was analyzed within the prescribed holding time.

Calibration
Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source (ICV). Continuing calibration (CCV) verifications were carried out on a frequency specified by the project. All calibration requirements were within acceptance criteria. Refer to calibration summary forms of ICAL, ICV and CCV for details. MRL was analyzed as required by the project. Refer to MRL summary form for details.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. DSJ059WB - result was compliant to project requirement. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of LCS/LCD was analyzed. J8J059WL/J8J059WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
No matrix QC sample was provided on this SDG.

Surrogate
Surrogates were added on QC and field samples. All surrogate recoveries were within QC limits. Refer to sample result summary forms for details.

Sample Analysis
The sample was analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

LAB CHRONICLE
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : EUROFINS EATON ANALYTICAL
Project : 380-25927

SDG NO. : 22J367
Instrument ID : D5

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	DSJ059WB	1	NA	10/28/2216:13	10/27/2212:15	LJ28009A	LJ28003A	22DSJ059W	Method Blank
LCS1W	DSJ059WL	1	NA	10/28/2216:32	10/27/2212:15	LJ28010A	LJ28003A	22DSJ059W	Lab Control Sample (LCS)
LCD1W	DSJ059WC	1	NA	10/28/2216:50	10/27/2212:15	LJ28011A	LJ28003A	22DSJ059W	LCS Duplicate
380-25927-1	J367-01	1	NA	10/28/2220:31	10/27/2212:15	LJ28023A	LJ28003A	22DSJ059W	Field Sample

FN - Filename
% Moist - Percent Moisture

LAB CHRONICLE
PETROLEUM HYDROCARBONS BY EXTRACTION

Client : EUROFINS EATON ANALYTICAL
Project : 380-25927

SDG NO. : 22J367
Instrument ID : D5

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	DSJ059WB	1	NA	10/28/2216:13	10/27/2212:15	LJ28009A	LJ28004A	22DSJ059W	Method Blank
LCS1W	J5J059WL	1	NA	10/28/2217:09	10/27/2212:15	LJ28012A	LJ28004A	22DSJ059W	Lab Control Sample (LCS)
LCD1W	J5J059WC	1	NA	10/28/2217:27	10/27/2212:15	LJ28013A	LJ28004A	22DSJ059W	LCS Duplicate
380-25927-1	J367-01	1	NA	10/28/2220:31	10/27/2212:15	LJ28023A	LJ28004A	22DSJ059W	Field Sample

FN - Filename
% Moist - Percent Moisture

LAB CHRONICLE
PETROLEUM HYDROCARBONS BY EXTRACTION

Client : EUROFINS EATON ANALYTICAL
Project : 380-25927

SDG NO. : 22J367
Instrument ID : D5

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	DSJ059WB	1	NA	10/28/2216:13	10/27/2212:15	LJ28009A	LJ28005A	22DSJ059W	Method Blank
LCS1W	J8J059WL	1	NA	10/28/2217:46	10/27/2212:15	LJ28014A	LJ28005A	22DSJ059W	Lab Control Sample (LCS)
LCD1W	J8J059WC	1	NA	10/28/2218:04	10/27/2212:15	LJ28015A	LJ28005A	22DSJ059W	LCS Duplicate
380-25927-1	J367-01	1	NA	10/28/2220:31	10/27/2212:15	LJ28023A	LJ28005A	22DSJ059W	Field Sample

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: EUROFINS EATON ANALYTICAL	Date Collected:	10/24/22 09:30
Project	: 380-25927	Date Received:	10/27/22
Batch No.	: 22J367	Date Extracted:	10/27/22 12:15
Sample ID	: 380-25927-1	Date Analyzed:	10/28/22 20:31
Lab Samp ID:	22J367-01	Dilution Factor:	1
Lab File ID:	LJ28023A	Matrix:	WATER
Ext Btch ID:	22DSJ059W	% Moisture:	NA
Calib. Ref.:	LJ28003A	Instrument ID:	D5

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Diesel	ND	0.027	0.014
Motor Oil	ND	0.055	0.027

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.467	0.545	86	60-130
Hexacosane	0.143	0.136	105	60-130

Notes:

Parameter	H-C Range
Diesel	C10-C24
Motor Oil	C24-C36

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

Sample Amount	: 920ml	Final Volume	: 5ml
Prepared by	: JMuert	Analyzed by	: SDeeso

METHOD 3520C/8015B
PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: EUROFINS EATON ANALYTICAL	Date Collected:	10/24/22 09:30
Project	: 380-25927	Date Received:	10/27/22
Batch No.	: 22J367	Date Extracted:	10/27/22 12:15
Sample ID	: 380-25927-1	Date Analyzed:	10/28/22 20:31
Lab Samp ID:	22J367-01	Dilution Factor:	1
Lab File ID:	LJ28023A	Matrix:	WATER
Ext Btch ID:	22DSJ059W	% Moisture:	NA
Calib. Ref.:	LJ28004A	Instrument ID:	D5

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
JP5	ND	0.055	0.027

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.467	0.545	86	60-130
Hexacosane	0.143	0.136	105	60-130

Notes:
RL : Reporting Limit

Parameter	H-C Range
JP5	C8-C18

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.
Sample Amount : 920ml Final Volume : 5ml
Prepared by : JMuert Analyzed by : SDeeso

METHOD 3520C/8015B
PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: EUROFINS EATON ANALYTICAL	Date Collected:	10/24/22 09:30
Project	: 380-25927	Date Received:	10/27/22
Batch No.	: 22J367	Date Extracted:	10/27/22 12:15
Sample ID	: 380-25927-1	Date Analyzed:	10/28/22 20:31
Lab Samp ID:	22J367-01	Dilution Factor:	1
Lab File ID:	LJ28023A	Matrix:	WATER
Ext Btch ID:	22DSJ059W	% Moisture:	NA
Calib. Ref.:	LJ28005A	Instrument ID:	D5

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
JP8	ND	0.055	0.027

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.467	0.545	86	60-130
Hexacosane	0.143	0.136	105	60-130

Notes:
RL : Reporting Limit

Parameter	H-C Range
JP8	C8-C18

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.
Sample Amount : 920ml Final Volume : 5ml
Prepared by : JMuert Analyzed by : SDeeso

QC SUMMARIES

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: EUROFINS EATON ANALYTICAL	Date Collected:	10/27/22 12:15
Project	: 380-25927	Date Received:	10/27/22
Batch No.	: 22J367	Date Extracted:	10/27/22 12:15
Sample ID	: MBLK1W	Date Analyzed:	10/28/22 16:13
Lab Samp ID:	DSJ059WB	Dilution Factor:	1
Lab File ID:	LJ28009A	Matrix:	WATER
Ext Btch ID:	22DSJ059W	% Moisture:	NA
Calib. Ref.:	LJ28003A	Instrument ID:	D5

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Diesel	ND	0.025	0.012
Motor Oil	ND	0.050	0.025

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.515	0.500	103	60-130
Hexacosane	0.134	0.125	108	60-130

Notes:

Parameter	H-C Range
Diesel	C10-C24
Motor Oil	C24-C36

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

Sample Amount	: 1000ml	Final Volume	: 5ml
Prepared by	: JMuert	Analyzed by	: SDeeso

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL
PROJECT : 380-25927
BATCH NO. : 22J367
METHOD : 3520C/8015B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR	: 1	1	1
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: DSJ059WB	DSJ059WL	DSJ059WC
LAB FILE ID	: LJ28009A	LJ28010A	LJ28011A
DATE PREPARED	: 10/27/22 12:15	10/27/22 12:15	10/27/22 12:15
DATE ANALYZED	: 10/28/22 16:13	10/28/22 16:32	10/28/22 16:50
PREP BATCH	: 22DSJ059W	22DSJ059W	22DSJ059W
CALIBRATION REF	: LJ28003A	LJ28003A	LJ28003A

ACCESSION:

PARAMETERS	MBResult (mg/L)	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Diesel	ND	2.50	2.70	108	2.50	2.70	108	0	50-130	30

SURROGATE PARAMETERS	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	QCLimit (%)
Bromobenzene	0.500	0.520	104	0.500	0.508	102	60-130
Hexacosane	0.125	0.133	106	0.125	0.132	106	60-130

MB: Method Blank sample LCS: Lab Control Sample LCD: Lab Control Sample Duplicate

METHOD 3520C/8015B
PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: EUROFINS EATON ANALYTICAL	Date Collected:	10/27/22 12:15
Project	: 380-25927	Date Received:	10/27/22
Batch No.	: 22J367	Date Extracted:	10/27/22 12:15
Sample ID	: MBLK1W	Date Analyzed:	10/28/22 16:13
Lab Samp ID:	DSJ059WB	Dilution Factor:	1
Lab File ID:	LJ28009A	Matrix:	WATER
Ext Btch ID:	22DSJ059W	% Moisture:	NA
Calib. Ref.:	LJ28004A	Instrument ID:	D5

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
JP5	ND	0.050	0.025

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.515	0.500	103	60-130
Hexacosane	0.134	0.125	108	60-130

Notes:
RL : Reporting Limit

Parameter	H-C Range
JP5	C8-C18

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.
Sample Amount : 1000ml Final Volume : 5ml
Prepared by : JMuert Analyzed by : SDeeso

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL
PROJECT : 380-25927
BATCH NO. : 22J367
METHOD : 3520C/8015B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR	: 1	1	1
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: DSJ059WB	J5J059WL	J5J059WC
LAB FILE ID	: LJ28009A	LJ28012A	LJ28013A
DATE PREPARED	: 10/27/22 12:15	10/27/22 12:15	10/27/22 12:15
DATE ANALYZED	: 10/28/22 16:13	10/28/22 17:09	10/28/22 17:27
PREP BATCH	: 22DSJ059W	22DSJ059W	22DSJ059W
CALIBRATION REF	: LJ28004A	LJ28004A	LJ28004A

ACCESSION:

PARAMETERS	MBResult (mg/L)	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
JP5	ND	2.50	2.56	102	2.50	2.65	106	3	30-160	30

SURROGATE PARAMETERS	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	QCLimit (%)
Bromobenzene	0.500	0.457	91	0.500	0.442	88	60-130
Hexacosane	0.125	0.123	98	0.125	0.115	92	60-130

MB: Method Blank sample LCS: Lab Control Sample LCD: Lab Control Sample Duplicate

METHOD 3520C/8015B
PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: EUROFINS EATON ANALYTICAL	Date Collected:	10/27/22 12:15
Project	: 380-25927	Date Received:	10/27/22
Batch No.	: 22J367	Date Extracted:	10/27/22 12:15
Sample ID	: MBLK1W	Date Analyzed:	10/28/22 16:13
Lab Samp ID:	DSJ059WB	Dilution Factor:	1
Lab File ID:	LJ28009A	Matrix:	WATER
Ext Btch ID:	22DSJ059W	% Moisture:	NA
Calib. Ref.:	LJ28005A	Instrument ID:	D5

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
JP8	ND	0.050	0.025

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.515	0.500	103	60-130
Hexacosane	0.134	0.125	108	60-130

Notes:
RL : Reporting Limit
Parameter H-C Range
JP8 C8-C18
Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.
Sample Amount : 1000ml Final Volume : 5ml
Prepared by : JMuert Analyzed by : SDeeso

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL
PROJECT : 380-25927
BATCH NO. : 22J367
METHOD : 3520C/8015B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR	: 1	1	1
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: DSJ059WB	J8J059WL	J8J059WC
LAB FILE ID	: LJ28009A	LJ28014A	LJ28015A
DATE PREPARED	: 10/27/22 12:15	10/27/22 12:15	10/27/22 12:15
DATE ANALYZED	: 10/28/22 16:13	10/28/22 17:46	10/28/22 18:04
PREP BATCH	: 22DSJ059W	22DSJ059W	22DSJ059W
CALIBRATION REF	: LJ28005A	LJ28005A	LJ28005A

ACCESSION:

PARAMETERS	MBResult (mg/L)	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
JP8	ND	2.50	2.97	119	2.50	3.25	130	9	30-160	30

SURROGATE PARAMETERS	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	QCLimit (%)
Bromobenzene	0.500	0.479	96	0.500	0.573	115	60-130
Hexacosane	0.125	0.121	97	0.125	0.123	98	60-130

MB: Method Blank sample LCS: Lab Control Sample LCD: Lab Control Sample Duplicate

November 23, 2022

Debbie Frank
Eurofins Eaton Analytical
750 Royal Oaks Drive
Suite 100
Monrovia, CA 91016-

Project Name: RED-HILL Project # 38001111 Job # 380-25927-1
Physis Project ID: 1407003-331

Dear Debbie,

Enclosed are the analytical results for the sample submitted to PHYSIS Environmental Laboratories, Inc. (PHYSIS) on 10/27/2022. 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,

Misty Mercier
714 602-5320
Extension 202
mistymercier@physislabs.com

PROJECT SAMPLE LIST

Eurofins Eaton Analytical

PHYSIS Project ID: 1407003-331

RED-HILL Project # 38001111 Job # 380-25927-1

Total Samples: 1

PHYSIS ID	Sample ID	Description	Date	Time	Matrix	Sample Type
101129	HALAWA SHAFT VIEWING POOL	380-25927-1	10/24/2022	9:30	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.

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

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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: 1407003-331
Client: Eurofins Eaton Analytical
Project: RED-HILL Project # 38001111 Job # 380-25927-1

Base/Neutral Extractable Compounds

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Sample ID: 101129-R1	**HALAWA SHAFT VIEWING POOL 3**	**Matrix: Samplewater**					**Sampled:**	**24-Oct-22**	**9:30**	**Received:**	**27-Oct-22**
Disalicylidenepropanediamine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-40010	31-Oct-22	15-Nov-22

Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Sample ID: 101129-R1	**HALAWA SHAFT VIEWING POOL 3**	**Matrix: Samplewater**					**Sampled:**	**24-Oct-22**	**9:30**	**Received:**	**27-Oct-22**
(d10-Acenaphthene)	EPA 625.1	% Recovery	46	1			Total		O-40010	31-Oct-22	15-Nov-22
(d10-Phenanthrene)	EPA 625.1	% Recovery	75	1			Total		O-40010	31-Oct-22	15-Nov-22
(d12-Chrysene)	EPA 625.1	% Recovery	91	1			Total		O-40010	31-Oct-22	15-Nov-22
(d12-Perylene)	EPA 625.1	% Recovery	79	1			Total		O-40010	31-Oct-22	15-Nov-22
(d8-Naphthalene)	EPA 625.1	% Recovery	31	1			Total		O-40010	31-Oct-22	15-Nov-22
1-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40010	31-Oct-22	15-Nov-22
1-Methylphenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40010	31-Oct-22	15-Nov-22
2,3,5-Trimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40010	31-Oct-22	15-Nov-22
2,6-Dimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40010	31-Oct-22	15-Nov-22
2-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40010	31-Oct-22	15-Nov-22
Acenaphthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40010	31-Oct-22	15-Nov-22
Acenaphthylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40010	31-Oct-22	15-Nov-22
Anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40010	31-Oct-22	15-Nov-22
Benz[a]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40010	31-Oct-22	15-Nov-22
Benzo[a]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40010	31-Oct-22	15-Nov-22
Benzo[b]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40010	31-Oct-22	15-Nov-22
Benzo[e]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40010	31-Oct-22	15-Nov-22
Benzo[g,h,i]perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40010	31-Oct-22	15-Nov-22
Benzo[k]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40010	31-Oct-22	15-Nov-22
Biphenyl	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40010	31-Oct-22	15-Nov-22
Chrysene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40010	31-Oct-22	15-Nov-22
D benz[a,h]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40010	31-Oct-22	15-Nov-22
D benzo[a,l]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40010	31-Oct-22	15-Nov-22
D benzothiophene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40010	31-Oct-22	15-Nov-22

PHYSIS Project ID: 1407003-331
Client: Eurofins Eaton Analytical
Project: RED-HILL Project # 38001111 Job # 380-25927-1

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-40010	31-Oct-22	15-Nov-22
Fluorene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40010	31-Oct-22	15-Nov-22
Indeno[1,2,3-cd]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40010	31-Oct-22	15-Nov-22
Naphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40010	31-Oct-22	15-Nov-22
Perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40010	31-Oct-22	15-Nov-22
Phenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40010	31-Oct-22	15-Nov-22
Pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40010	31-Oct-22	15-Nov-22

QUALITY CONTROL REPORT

ENVIRONMENTAL LABORATORIES, INC.

Innovative Solutions for Nature

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: 101128-B1	**QAQC Procedural Blank**					**Matrix: BlankMatrix**		**Sampled:**					**Received:**	
		Method: EPA 625.1				Batch ID: O-40010		Prepared: 31-Oct-22					Analyzed: 15-Nov-22	
Disalicylidenepropanediamin	Total	ND	1	0.05	0.1	µg/L								
Sample ID: 101128-BS1	**QAQC Procedural Blank**					**Matrix: BlankMatrix**		**Sampled:**					**Received:**	
		Method: EPA 625.1				Batch ID: O-40010		Prepared: 31-Oct-22					Analyzed: 15-Nov-22	
Disalicylidenepropanediamin	Total	24.8	1	0.05	0.1	µg/L	50	0	50	50 - 150%	PASS			
Sample ID: 101128-BS2	**QAQC Procedural Blank**					**Matrix: BlankMatrix**		**Sampled:**					**Received:**	
		Method: EPA 625.1				Batch ID: O-40010		Prepared: 31-Oct-22					Analyzed: 15-Nov-22	
Disalicylidenepropanediamin	Total	25.5	1	0.05	0.1	µg/L	50	0	51	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: 101128-B1	**QAQC Procedural Blank**					**Matrix: BlankMatrix**		**Sampled:**				**Received:**	
		Method: EPA 625.1				Batch ID: O-40010		Prepared: 31-Oct-22				Analyzed: 15-Nov-22	
(d10-Acenaphthene)	Total	84	1			% Recovery	100	84	27 - 133%	PASS			
(d10-Phenanthrene)	Total	85	1			% Recovery	100	85	43 - 129%	PASS			
(d12-Chrysene)	Total	111	1			% Recovery	100	111	52 - 144%	PASS			
(d12-Perylene)	Total	87	1			% Recovery	100	87	36 - 161%	PASS			
(d8-Naphthalene)	Total	59	1			% Recovery	100	59	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							
Dibenzothiophene	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
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: 101128-BS1	**QAQC Procedural Blank**					**Matrix: BlankMatrix**		**Sampled:**				**Received:**	
		Method: EPA 625.1				Batch ID: O-40010		Prepared: 31-Oct-22				Analyzed: 15-Nov-22	
(d10-Acenaphthene)	Total	86	1			% Recovery	100	0	86	27 - 133%	PASS		
(d10-Phenanthrene)	Total	94	1			% Recovery	100	0	94	43 - 129%	PASS		
(d12-Chrysene)	Total	89	1			% Recovery	100	0	89	52 - 144%	PASS		
(d12-Perylene)	Total	90	1			% Recovery	100	0	90	36 - 161%	PASS		
(d8-Naphthalene)	Total	69	1			% Recovery	100	0	69	25 - 125%	PASS		
1-Methylnaphthalene	Total	0.333	1	0.001	0.005	µg/L	0.5	0	67	31 - 128%	PASS		
1-Methylphenanthrene	Total	0.468	1	0.001	0.005	µg/L	0.5	0	94	66 - 127%	PASS		
2,3,5-Trimethylnaphthalene	Total	0.454	1	0.001	0.005	µg/L	0.5	0	91	55 - 122%	PASS		
2,6-Dimethylnaphthalene	Total	0.355	1	0.001	0.005	µg/L	0.5	0	71	48 - 120%	PASS		
2-Methylnaphthalene	Total	0.418	1	0.001	0.005	µg/L	0.5	0	84	47 - 130%	PASS		
Acenaphthene	Total	0.436	1	0.001	0.005	µg/L	0.5	0	87	53 - 131%	PASS		
Acenaphthylene	Total	0.377	1	0.001	0.005	µg/L	0.5	0	75	43 - 140%	PASS		
Anthracene	Total	0.457	1	0.001	0.005	µg/L	0.5	0	91	58 - 135%	PASS		
Benz[a]anthracene	Total	0.383	1	0.001	0.005	µg/L	0.5	0	77	55 - 145%	PASS		
Benzo[a]pyrene	Total	0.418	1	0.001	0.005	µg/L	0.5	0	84	51 - 143%	PASS		
Benzo[b]fluoranthene	Total	0.498	1	0.001	0.005	µg/L	0.5	0	100	46 - 165%	PASS		
Benzo[e]pyrene	Total	0.488	1	0.001	0.005	µg/L	0.5	0	98	42 - 152%	PASS		
Benzo[g,h,i]perylene	Total	0.449	1	0.001	0.005	µg/L	0.5	0	90	63 - 133%	PASS		
Benzo[k]fluoranthene	Total	0.493	1	0.001	0.005	µg/L	0.5	0	99	56 - 145%	PASS		
Biphenyl	Total	0.363	1	0.001	0.005	µg/L	0.5	0	73	56 - 119%	PASS		
Chrysene	Total	0.409	1	0.001	0.005	µg/L	0.5	0	82	56 - 141%	PASS		
Dibenz[a,h]anthracene	Total	0.471	1	0.001	0.005	µg/L	0.5	0	94	55 - 150%	PASS		
Dibenzo[a,l]pyrene	Total	0.163	1	0.001	0.005	µg/L	0.25	0	65	50 - 150%	PASS		
Dibenzothiophene	Total	0.452	1	0.001	0.005	µg/L	0.5	0	90	75 - 113%	PASS		

PHYSIS Project ID: 1407003-331
Client: Eurofins Eaton Analytical
Project: RED-HILL Project # 38001111 Job # 380-25927-1

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
Fluoranthene	Total	0.394	1	0.001	0.005	µg/L	0.5	0	79	60 - 146%	PASS			
Fluorene	Total	0.443	1	0.001	0.005	µg/L	0.5	0	89	58 - 131%	PASS			
Indeno[1,2,3-cd]pyrene	Total	0.479	1	0.001	0.005	µg/L	0.5	0	96	50 - 151%	PASS			
Naphthalene	Total	0.349	1	0.001	0.005	µg/L	0.5	0	70	41 - 126%	PASS			
Perylene	Total	0.463	1	0.001	0.005	µg/L	0.5	0	93	48 - 141%	PASS			
Phenanthrene	Total	0.478	1	0.001	0.005	µg/L	0.5	0	96	67 - 127%	PASS			
Pyrene	Total	0.369	1	0.001	0.005	µg/L	0.5	0	74	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: 101128-BS2	**QAQC Procedural Blank**					**Matrix: BlankMatrix**		**Sampled:**					**Received:**		
		Method: EPA 625.1				Batch ID: O-40010		Prepared: 31-Oct-22					Analyzed: 15-Nov-22		
(d10-Acenaphthene)	Total	81	1			% Recovery	100	0	81	27 - 133%	PASS	6	30	PASS	
(d10-Phenanthrene)	Total	91	1			% Recovery	100	0	91	43 - 129%	PASS	3	30	PASS	
(d12-Chrysene)	Total	89	1			% Recovery	100	0	89	52 - 144%	PASS	0	30	PASS	
(d12-Perylene)	Total	88	1			% Recovery	100	0	88	36 - 161%	PASS	2	30	PASS	
(d8-Naphthalene)	Total	72	1			% Recovery	100	0	72	25 - 125%	PASS	4	30	PASS	
1-Methylnaphthalene	Total	0.315	1	0.001	0.005	µg/L	0.5	0	63	31 - 128%	PASS	6	30	PASS	
1-Methylphenanthrene	Total	0.449	1	0.001	0.005	µg/L	0.5	0	90	66 - 127%	PASS	4	30	PASS	
2,3,5-Trimethylnaphthalene	Total	0.411	1	0.001	0.005	µg/L	0.5	0	82	55 - 122%	PASS	10	30	PASS	
2,6-Dimethylnaphthalene	Total	0.396	1	0.001	0.005	µg/L	0.5	0	79	48 - 120%	PASS	11	30	PASS	
2-Methylnaphthalene	Total	0.34	1	0.001	0.005	µg/L	0.5	0	68	47 - 130%	PASS	21	30	PASS	
Acenaphthene	Total	0.404	1	0.001	0.005	µg/L	0.5	0	81	53 - 131%	PASS	7	30	PASS	
Acenaphthylene	Total	0.408	1	0.001	0.005	µg/L	0.5	0	82	43 - 140%	PASS	9	30	PASS	
Anthracene	Total	0.445	1	0.001	0.005	µg/L	0.5	0	89	58 - 135%	PASS	2	30	PASS	
Benz[a]anthracene	Total	0.384	1	0.001	0.005	µg/L	0.5	0	77	55 - 145%	PASS	0	30	PASS	
Benzo[a]pyrene	Total	0.41	1	0.001	0.005	µg/L	0.5	0	82	51 - 143%	PASS	2	30	PASS	
Benzo[b]fluoranthene	Total	0.509	1	0.001	0.005	µg/L	0.5	0	102	46 - 165%	PASS	2	30	PASS	
Benzo[e]pyrene	Total	0.479	1	0.001	0.005	µg/L	0.5	0	96	42 - 152%	PASS	2	30	PASS	
Benzo[g,h,i]perylene	Total	0.426	1	0.001	0.005	µg/L	0.5	0	85	63 - 133%	PASS	6	30	PASS	
Benzo[k]fluoranthene	Total	0.482	1	0.001	0.005	µg/L	0.5	0	96	56 - 145%	PASS	3	30	PASS	
Biphenyl	Total	0.393	1	0.001	0.005	µg/L	0.5	0	79	56 - 119%	PASS	8	30	PASS	
Chrysene	Total	0.411	1	0.001	0.005	µg/L	0.5	0	82	56 - 141%	PASS	0	30	PASS	
Dibenz[a,h]anthracene	Total	0.499	1	0.001	0.005	µg/L	0.5	0	100	55 - 150%	PASS	6	30	PASS	
Dibenzo[a,l]pyrene	Total	0.134	1	0.001	0.005	µg/L	0.25	0	54	50 - 150%	PASS	18	30	PASS	
Dibenzothiophene	Total	0.443	1	0.001	0.005	µg/L	0.5	0	89	75 - 113%	PASS	1	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
Fluoranthene	Total	0.468	1	0.001	0.005	µg/L	0.5	0	94	60 - 146%	PASS	17	30	PASS	
Fluorene	Total	0.411	1	0.001	0.005	µg/L	0.5	0	82	58 - 131%	PASS	8	30	PASS	
Indeno[1,2,3-cd]pyrene	Total	0.48	1	0.001	0.005	µg/L	0.5	0	96	50 - 151%	PASS	0	30	PASS	
Naphthalene	Total	0.364	1	0.001	0.005	µg/L	0.5	0	73	41 - 126%	PASS	4	30	PASS	
Perylene	Total	0.465	1	0.001	0.005	µg/L	0.5	0	93	48 - 141%	PASS	0	30	PASS	
Phenanthrene	Total	0.449	1	0.001	0.005	µg/L	0.5	0	90	67 - 127%	PASS	6	30	PASS	
Pyrene	Total	0.457	1	0.001	0.005	µg/L	0.5	0	91	54 - 156%	PASS	21	30	PASS	

TENTATIVELY IDENTIFIED COMPOUNDS

Sample ID: 101129

RT	Area Pct	Concentration (ng/L)	Library/ID	Cas Number	Match Qual
32.2397	9.8104	1111	Anthracene-D10-	1719-06-8	96
29.2455	8.2408	933	Benzoic acid, 2-ethylhexyl ester	5444-75-7	99

Concentration estimated using the response for Anthracene-d10

Sample ID: Lab Blank B1_40010

RT	Area Pct	Concentration (ng/L)	Library/ID	Cas Number	Match Qual
32.2422	7.6805	1111	Anthracene-D10-	1719-06-8	97
29.2428	9.2850	1343	Benzoic acid, 2-ethylhexyl ester	5444-75-7	99

Concentration estimated using the response for Anthracene-d10

CHAIN OF CUSTODY

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

Chain of Custody Record

eurofins | Environment Testing

12/16/2022

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arada, Rachelle	Carrier Tracking No(s):	COC No: 380-26444.1
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 #: 380-25927-1
Address: 1904 Wright Circle, ,	Due Date Requested: 11/9/2022			
City: Anaheim	TAT Requested (days):			
State, Zip: CA, 92806				
Phone:	PO #:			
Email:	WO #:			
Project Name: RED-HILL	Project #: 38001111			
Site: Honolulu BWS Sites	SSOW#:			

Analysis 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:

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:						
HALAWA SHAFT VIEWING POOL (380-25927-1)	10/24/22	09:30 Hawaiian		Water			X	2	See Attached Instructions

Note: Since laboratory accreditations are subject to change, Eurofins Eaton Analytical, LLC places the ownership of method, analyte & accreditation compliance upon out 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: Albert	Date/Time: 10-27-22 1258	Company EEA	Received by: MOVING AWAY	Date/Time: 10/27/22 1255	Company PHYSIS
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:

Ver: 06/08/2021

PHYSIS
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PHYSIS
ENVIRONMENTAL LABORATORIES, INC.

Project Iteration ID: 1407003-331
Client Name: Eurofins Eaton Analytical
Project Name: RED-HILL Project # 38001111 Job # 380-25927-1
COC Page Number: 2 of 2
Bottle Label Color: NA

Sample Receipt Summary

Receiving Info

1. Initials Received By: MN
2. Date Received: 10/27/22
3. Time Received: 12:55
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): 12.2 Used I/R Thermometer # 1-2

Inspection Info

1. Initials Inspected By: RGH

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:

See temp

P:\Sample Logistics (SL)\SRS

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

Chain of Custody Record

eurofins | Environment Testing America

Client Information	Sampler: Olek Hepple	Lab PM: Frank, Debbie L	Carrier Tracking No(s):	COC No: 380-9755-2757.2
Client Contact: Dr. Ron Fenstemacher	Phone: 8087485840	E-Mail: Debbie.Frank@et.eurofinsus.com	State of Origin:	Page: Page 2 of 3
Company: City & County of Honolulu	PWSID:			Job #:
Address: 630 South Beretania Street Chemistry Lab	Due Date Requested:			
City: Honolulu	TAT Requested (days):			
State, Zip: HI, 96843	Compliance Project: Δ Yes 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: Hawaii	SSOW#:			

Analysis 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:

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	SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)	SUBCONTRACT - 8015 Diesel LL (EAL) and Motor Oil	525.2_PREC - (MOD) 525plus Plus TICs	SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	R	R	RA		RA	X	
MOANALUA WELLS (331-223-TP202)				Water									
AIEA GULCH WELLS PUMP 1 (331-201-TP071)				Water									RECEIVED
AIEA GULCH WELLS PUMP 2 (331-202-TP072)				Water									"SUBCONTRACT - 8015 DIESEL LL (EAL)
AIEA WELLS PUMPS1&2(260)331-203-TP400				Water									AND MOTOR OIL" 2x IN 1 LITER
HALAWA SHAFT (~~331-241-TP401~~) Viewing Pool	10-24-22	930		Water			X	X		X	X		AMBER GLASS WITH SODIUM THIOSULFATE/HYDROCHLORIC ACID.
HALAWA WELLS UNITS1&2(331-206-TP065)				Water									AND
MOANALUA WELLS (331-223-TP202)				Water									TB SUBCONTRACT - 8015 GAS (PURGEABLE) LL (EAL)
AIEA GULCH WELLS PUMP 1 (331-201-TP071)				Water									
AIEA GULCH WELLS PUMP 2 (331-202-TP072)				Water									
AIEA WELLS PUMPS1&2(260)331-203-TP400				Water									
HALAWA SHAFT (331-241-TP401)				Water									

380-25927 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 7703 0233 3246

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[redacted]	10-24-22 1200		G RETTNER	10/26/2022 10:00	EEA
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	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: (751A) 4.0°-3.8° GEL / PARTIALLY FROZEN

Ver: 06/08/2021

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

Chain of Custody Record

COPY

eurofins | Environment Testing America

Client Information	Sampler: Olof Hoppe	Lab PM: Frank, Debbie L	Carrier Tracking No(s):	COC No: 380-9755-2757.3
Client Contact: Dr. Ron Fenstemacher	Phone: 8087485840	E-Mail: Debbie.Frank@et.eurofinsus.com	State of Origin:	Page: Page 3 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)
City: Honolulu	TAT Requested (days):			
State, Zip: HI, 96843	Compliance Project: Δ Yes 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: Hawaii	SSOW#:			Other:

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	SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)	SUBCONTRACT - 8015 Diesel LL (EAL) and Motor Oil	525.2_PREC - (MOD) 525plus Plus TICs	SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	R	R	RA		RA	X	
HALAWA WELLS UNITS1&2(331-206-TP065)				Water									
MOANALUA WELLS (331-223-TP202)				Water									
TB AIEA GULCH WELLS PUMP1 331-201-TP071				Water									
TB AIEA GULCH WELLS PUMP2 331-202-TP07				Water									
TB AIEA WELLS PUMPS1&2(260)331-203-TP400				Water									
TB HALAWA SHAFT ~~(331-241-TP401)~~ Viewing Pool	10-24-22	930	C	Water							X		
TB HALAWA WELLS UNITS1&2(331-206-TP065)				Water									
TB MOANALUA WELLS (331-223-TP202)				Water									

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:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Olof Hoppe	10-24-22 1200				
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:

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-25927-1

Login Number: 25927
List Number: 1
Creator: Elyas, Matthew

List Source: Eurofins Eaton Monrovia

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	