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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 11/29/2022 2:02:36 PM Revision 1

JOB DESCRIPTION

RED-HILL
RUSH Weekly Red Hill

JOB NUMBER

380-23773-1

Eurofins Eaton Monrovia

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.

Authorization



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Revision 1

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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)





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Definitions/Glossary

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

Job ID: 380-23773-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
^3+	Reporting Limit Check Standard is outside acceptance limits, high biased
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

Case Narrative

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

Job ID: 380-23773-1

Job ID: 380-23773-1

Laboratory: Eurofins Eaton Monrovia

Narrative

Job Narrative 380-23773-1

Comment

Revised report to merge subcontract data into the report. Data not impacted.

Receipt

The samples were received on 10/11/2022 9:45 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.3°C

SUBCONTRACTING

The following analyses were subcontracted to EMAX Laboratories Inc:

8015 Diesel LL (EAL) and Motor Oil
8015 Gas (Purgeable) LL (EAL)

The following analysis was subcontracted to Physis Environmental Laboratories:

625 PAH Physis LL (EAL) + TICs

GC/MS Semi VOA

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

Subcontract Lab non-Sister Lab

See attached subcontract report.

Subcontract Work

Methods 8015 Diesel LL (EAL) and Motor Oil, 8015 Gas (Purgeable) LL (EAL): 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: 380-23773-1

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

Lab Sample ID: 380-23773-1

No Detections.

Client Sample ID: TB HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-23773-2

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins Eaton Monrovia

Client Sample Results

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

Job ID: 380-23773-1

Client Sample ID: HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-23773-1

Date Collected: 10/10/22 09:40

Matrix: Drinking Water

Date Received: 10/11/22 09:45

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		0.098	ug/L		10/13/22 06:14	10/14/22 18:49	1
2,4'-DDE	ND		0.098	ug/L		10/13/22 06:14	10/14/22 18:49	1
2,4'-DDT	ND		0.098	ug/L		10/13/22 06:14	10/14/22 18:49	1
2,4-Dinitrotoluene	ND		0.098	ug/L		10/13/22 06:14	10/14/22 18:49	1
2,6-Dinitrotoluene	ND		0.098	ug/L		10/13/22 06:14	10/14/22 18:49	1
4,4'-DDD	ND		0.098	ug/L		10/13/22 06:14	10/14/22 18:49	1
4,4'-DDE	ND		0.098	ug/L		10/13/22 06:14	10/14/22 18:49	1
4,4'-DDT	ND		0.098	ug/L		10/13/22 06:14	10/14/22 18:49	1
Acenaphthene	ND		0.098	ug/L		10/13/22 06:14	10/14/22 18:49	1
Acenaphthylene	ND		0.098	ug/L		10/13/22 06:14	10/14/22 18:49	1
Acetochlor	ND		0.098	ug/L		10/13/22 06:14	10/14/22 18:49	1
Alachlor	ND		0.049	ug/L		10/13/22 06:14	10/14/22 18:49	1
alpha-BHC	ND		0.098	ug/L		10/13/22 06:14	10/14/22 18:49	1
alpha-Chlordane	ND		0.049	ug/L		10/13/22 06:14	10/14/22 18:49	1
Anthracene	ND		0.020	ug/L		10/13/22 06:14	10/14/22 18:49	1
Atrazine	ND		0.049	ug/L		10/13/22 06:14	10/14/22 18:49	1
Benz(a)anthracene	ND		0.049	ug/L		10/13/22 06:14	10/14/22 18:49	1
Benzo[a]pyrene	ND		0.020	ug/L		10/13/22 06:14	10/14/22 18:49	1
Benzo[b]fluoranthene	ND		0.020	ug/L		10/13/22 06:14	10/14/22 18:49	1
Benzo[g,h,i]perylene	ND		0.049	ug/L		10/13/22 06:14	10/14/22 18:49	1
Benzo[k]fluoranthene	ND		0.020	ug/L		10/13/22 06:14	10/14/22 18:49	1
beta-BHC	ND		0.098	ug/L		10/13/22 06:14	10/14/22 18:49	1
Bromacil	ND		0.098	ug/L		10/13/22 06:14	10/14/22 18:49	1
Butachlor	ND		0.049	ug/L		10/13/22 06:14	10/14/22 18:49	1
Butylbenzylphthalate	ND		0.49	ug/L		10/13/22 06:14	10/14/22 18:49	1
Caffeine	ND		0.049	ug/L		10/13/22 06:14	10/14/22 18:49	1
Chlorobenzilate	ND	^3+	0.098	ug/L		10/13/22 06:14	10/14/22 18:49	1
Chloroneb	ND		0.098	ug/L		10/13/22 06:14	10/14/22 18:49	1
Chlorothalonil (Draconil, Bravo)	ND		0.098	ug/L		10/13/22 06:14	10/14/22 18:49	1
Chlorpyrifos	ND		0.049	ug/L		10/13/22 06:14	10/14/22 18:49	1
Chrysene	ND		0.020	ug/L		10/13/22 06:14	10/14/22 18:49	1
delta-BHC	ND		0.098	ug/L		10/13/22 06:14	10/14/22 18:49	1
Di(2-ethylhexyl)adipate	ND		0.59	ug/L		10/13/22 06:14	10/14/22 18:49	1
Bis(2-ethylhexyl) phthalate	ND		0.59	ug/L		10/13/22 06:14	10/14/22 18:49	1
Diazinon (Qualitative)	ND		0.098	ug/L		10/13/22 06:14	10/14/22 18:49	1
Dibenz(a,h)anthracene	ND		0.049	ug/L		10/13/22 06:14	10/14/22 18:49	1
Diclorvos (DDVP)	ND		0.049	ug/L		10/13/22 06:14	10/14/22 18:49	1
Dieldrin	ND		0.20	ug/L		10/13/22 06:14	10/14/22 18:49	1
Diethylphthalate	ND		0.49	ug/L		10/13/22 06:14	10/14/22 18:49	1
Dimethoate	ND		0.098	ug/L		10/13/22 06:14	10/14/22 18:49	1
Dimethylphthalate	ND		0.49	ug/L		10/13/22 06:14	10/14/22 18:49	1
Di-n-butyl phthalate	ND		0.98	ug/L		10/13/22 06:14	10/14/22 18:49	1
Di-n-octyl phthalate	ND		0.098	ug/L		10/13/22 06:14	10/14/22 18:49	1
Endosulfan I (Alpha)	ND		0.098	ug/L		10/13/22 06:14	10/14/22 18:49	1
Endosulfan II (Beta)	ND		0.098	ug/L		10/13/22 06:14	10/14/22 18:49	1
Endosulfan sulfate	ND		0.098	ug/L		10/13/22 06:14	10/14/22 18:49	1
Endrin	ND		0.098	ug/L		10/13/22 06:14	10/14/22 18:49	1
Endrin aldehyde	ND		0.098	ug/L		10/13/22 06:14	10/14/22 18:49	1
EPTC	ND		0.098	ug/L		10/13/22 06:14	10/14/22 18:49	1

Eurofins Eaton Monrovia

Client Sample Results

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

Job ID: 380-23773-1

Client Sample ID: HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-23773-1

Date Collected: 10/10/22 09:40

Matrix: Drinking Water

Date Received: 10/11/22 09:45

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		0.098	ug/L		10/13/22 06:14	10/14/22 18:49	1
Fluorene	ND		0.049	ug/L		10/13/22 06:14	10/14/22 18:49	1
gamma-Chlordane	ND		0.049	ug/L		10/13/22 06:14	10/14/22 18:49	1
Heptachlor	ND		0.039	ug/L		10/13/22 06:14	10/14/22 18:49	1
Heptachlor epoxide (isomer B)	ND		0.049	ug/L		10/13/22 06:14	10/14/22 18:49	1
Hexachlorobenzene	ND		0.049	ug/L		10/13/22 06:14	10/14/22 18:49	1
Hexachlorocyclopentadiene	ND		0.049	ug/L		10/13/22 06:14	10/14/22 18:49	1
Indeno[1,2,3-cd]pyrene	ND		0.049	ug/L		10/13/22 06:14	10/14/22 18:49	1
Isophorone	ND		0.49	ug/L		10/13/22 06:14	10/14/22 18:49	1
Lindane	ND		0.039	ug/L		10/13/22 06:14	10/14/22 18:49	1
Malathion	ND		0.098	ug/L		10/13/22 06:14	10/14/22 18:49	1
Methoxychlor	ND		0.098	ug/L		10/13/22 06:14	10/14/22 18:49	1
Metolachlor	ND		0.049	ug/L		10/13/22 06:14	10/14/22 18:49	1
Metribuzin	ND		0.049	ug/L		10/13/22 06:14	10/14/22 18:49	1
Molinate	ND		0.098	ug/L		10/13/22 06:14	10/14/22 18:49	1
Naphthalene	ND		0.29	ug/L		10/13/22 06:14	10/14/22 18:49	1
Parathion	ND		0.098	ug/L		10/13/22 06:14	10/14/22 18:49	1
Pendimethalin (Penoxaline)	ND		0.098	ug/L		10/13/22 06:14	10/14/22 18:49	1
Total Permethrin (mixed isomers)	ND		0.20	ug/L		10/13/22 06:14	10/14/22 18:49	1
Phenanthrene	ND		0.039	ug/L		10/13/22 06:14	10/14/22 18:49	1
Propachlor	ND		0.049	ug/L		10/13/22 06:14	10/14/22 18:49	1
Pyrene	ND		0.049	ug/L		10/13/22 06:14	10/14/22 18:49	1
Simazine	ND		0.049	ug/L		10/13/22 06:14	10/14/22 18:49	1
Terbacil	ND		0.098	ug/L		10/13/22 06:14	10/14/22 18:49	1
Terbutylazine	ND		0.098	ug/L		10/13/22 06:14	10/14/22 18:49	1
Thiobencarb	ND		0.20	ug/L		10/13/22 06:14	10/14/22 18:49	1
trans-Nonachlor	ND		0.049	ug/L		10/13/22 06:14	10/14/22 18:49	1
Trifluralin	ND		0.098	ug/L		10/13/22 06:14	10/14/22 18:49	1

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Tentatively Identified Compound	None		ug/L				10/13/22 06:14	10/14/22 18:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	103		70 - 130	10/13/22 06:14	10/14/22 18:49	1
Triphenylphosphate	101		70 - 130	10/13/22 06:14	10/14/22 18:49	1
Perylene-d12	94		70 - 130	10/13/22 06:14	10/14/22 18:49	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		10/13/22 00:00	10/16/22 14:21	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		10/13/22 00:00	10/16/22 14:21	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		10/13/22 00:00	10/16/22 14:21	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		10/13/22 00:00	10/16/22 14:21	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		10/13/22 00:00	10/16/22 14:21	1
Acenaphthene	ND		0.005	0.001	µg/L		10/13/22 00:00	10/16/22 14:21	1
Acenaphthylene	ND		0.005	0.001	µg/L		10/13/22 00:00	10/16/22 14:21	1
Anthracene	ND		0.005	0.001	µg/L		10/13/22 00:00	10/16/22 14:21	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		10/13/22 00:00	10/16/22 14:21	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		10/13/22 00:00	10/16/22 14:21	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		10/13/22 00:00	10/16/22 14:21	1

Eurofins Eaton Monrovia

Client Sample Results

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

Job ID: 380-23773-1

Client Sample ID: HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-23773-1

Date Collected: 10/10/22 09:40

Matrix: Drinking Water

Date Received: 10/11/22 09:45

PWSID Number: HI0000331

Method: 625 PAH Physys 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		10/13/22 00:00	10/16/22 14:21	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		10/13/22 00:00	10/16/22 14:21	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		10/13/22 00:00	10/16/22 14:21	1
Biphenyl	ND		0.005	0.001	µg/L		10/13/22 00:00	10/16/22 14:21	1
Chrysene	ND		0.005	0.001	µg/L		10/13/22 00:00	10/16/22 14:21	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		10/13/22 00:00	10/16/22 14:21	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		10/13/22 00:00	10/16/22 14:21	1
Dibenzothiophene	ND		0.005	0.001	µg/L		10/13/22 00:00	10/16/22 14:21	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		10/13/22 00:00	10/16/22 14:21	1
Fluoranthene	ND		0.005	0.001	µg/L		10/13/22 00:00	10/16/22 14:21	1
Fluorene	ND		0.005	0.001	µg/L		10/13/22 00:00	10/16/22 14:21	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		10/13/22 00:00	10/16/22 14:21	1
Naphthalene	ND		0.005	0.001	µg/L		10/13/22 00:00	10/16/22 14:21	1
Perylene	ND		0.005	0.001	µg/L		10/13/22 00:00	10/16/22 14:21	1
Phenanthrene	ND		0.005	0.001	µg/L		10/13/22 00:00	10/16/22 14:21	1
Pyrene	ND		0.005	0.001	µg/L		10/13/22 00:00	10/16/22 14:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	92		45 - 118	10/13/22 00:00	10/16/22 14:21	1
(d10-Phenanthrene)	111		56 - 123	10/13/22 00:00	10/16/22 14:21	1
(d12-Chrysene)	83		36 - 142	10/13/22 00:00	10/16/22 14:21	1
(d12-Perylene)	105		36 - 161	10/13/22 00:00	10/16/22 14:21	1
(d8-Naphthalene)	85		20 - 112	10/13/22 00:00	10/16/22 14:21	1

Method: 8015 Diesel LL (EAL) and Motor Oil - 8015 - TPH DRO/ORO

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DIESEL	ND	U	0.025		mg/L			10/24/22 23:00	1
MOTOR OIL	ND	U	0.050		mg/L			10/24/22 23:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
BROMOBENZENE	86		60 - 130		10/24/22 23:00	1
HEXACOSANE	98		60 - 130		10/24/22 23:00	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			10/18/22 05:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
BROMOFLUOROBENZENE	91		60 - 140		10/18/22 05:35	1

Client Sample ID: TB HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-23773-2

Date Collected: 10/10/22 09:40

Matrix: Drinking Water

Date Received: 10/11/22 09:45

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			10/18/22 06:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
BROMOFLUOROBENZENE	95		60 - 140		10/18/22 06:10	1

Eurofins Eaton Monrovia

Action Limit Summary

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

Job ID: 380-23773-1

Client Sample ID: HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-23773-1

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	0.049	525.2	Total/NA
Atrazine	ND		ug/L	3	0.049	525.2	Total/NA
Benzo[a]pyrene	ND		ug/L	0.2	0.020	525.2	Total/NA
Di(2-ethylhexyl)adipate	ND		ug/L	400	0.59	525.2	Total/NA
Bis(2-ethylhexyl) phthalate	ND		ug/L	6	0.59	525.2	Total/NA
Endrin	ND		ug/L	2	0.098	525.2	Total/NA
Heptachlor	ND		ug/L	0.4	0.039	525.2	Total/NA
Heptachlor epoxide (isomer B)	ND		ug/L	0.2	0.049	525.2	Total/NA
Hexachlorobenzene	ND		ug/L	1	0.049	525.2	Total/NA
Hexachlorocyclopentadiene	ND		ug/L	50	0.049	525.2	Total/NA
Lindane	ND		ug/L	0.2	0.039	525.2	Total/NA
Methoxychlor	ND		ug/L	40	0.098	525.2	Total/NA
Simazine	ND		ug/L	4	0.049	525.2	Total/NA

Surrogate Summary

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

Job ID: 380-23773-1

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

Matrix: Drinking Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		2NMX (70-130)	TPP (70-130)	PRY (70-130)
380-23773-1	HALAWA SHAFT VIEWING POC	103	101	94

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

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		2NMX (70-130)	TPP (70-130)	PRY (70-130)
380-23209-AV-1-A DU	Duplicate	105	111	99
380-23677-AZ-1-A MS	Matrix Spike	109	100	100
LCS 380-20548/3-A	Lab Control Sample	103	108	101
LCS 380-20548/4-A	Lab Control Sample Dup	107	109	100
MB 380-20548/1-A	Method Blank	106	111	99
MRL 380-20548/2-A	Lab Control Sample	104	106	99

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

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)				
		Acenaphtl (27-133)	Phenanth (43-129)	CRY (52-144)	NPT (25-125)	PRY (36-161)
100788-B1	Method Blank	111	111	95	118	99
100788-BS1	Lab Control Sample	110	110	97	115	107
100788-BS2	Lab Control Sample Dup	111	109	82	89	105

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

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)				
		Acenaphtl (45-118)	Phenanth (56-123)	CRY (36-142)	NPT (20-112)	PRY (36-161)
380-23773-1	HALAWA SHAFT VIEWING POC	92	111	83	85	105

Surrogate Legend
 (d10-Acenaphthene) = (d10-Acenaphthene)
 (d10-Phenanthrene) = (d10-Phenanthrene)

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Surrogate Summary

Client: City & County of Honolulu
Project/Site: RED-HILL
CRY = (d12-Chrysene)
NPT = (d8-Naphthalene)
PRY = (d12-Perylene)

Job ID: 380-23773-1

Method: 8015 Diesel LL (EAL) and Motor Oil - 8015 - TPH DRO/ORO

Matrix: Drinking Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BB (60-130)	XACOSAI (60-130)
380-23773-1	HALAWA SHAFT VIEWING POC	86	98

Surrogate Legend

BB = BROMOBENZENE
HEXACOSANE = HEXACOSANE

Method: 8015 Diesel LL (EAL) and Motor Oil - 8015 - TPH DRO/ORO

Matrix: WATER

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BB (60-130)	XACOSAI (60-130)
22DSJ049WB	Method Blank		

Surrogate Legend

BB = BROMOBENZENE
HEXACOSANE = HEXACOSANE

Method: 8015 Diesel LL (EAL) and Motor Oil - 8015 - TPH DRO/ORO

Matrix: WATER

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BB (60-130)	XACOSAI (60-130)
22DSJ049WL	Lab Control Sample	103	99

Surrogate Legend

BB = BROMOBENZENE
HEXACOSANE = HEXACOSANE

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

Matrix: Drinking Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB (60-140)
380-23773-1	HALAWA SHAFT VIEWING POC	91
380-23773-2	TB HALAWA SHAFT VIEWING POOL	95

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)

Lab Sample ID	Client Sample ID	BFB (70-130)
22VGH7J09C	LCD	105
22VGH7J09L	Lab Control Sample	103

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Surrogate Summary

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

Job ID: 380-23773-1

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

22VGH7J09B

Method Blank

Surrogate Legend

BFB = BROMOFLUOROBENZENE

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17

QC Sample Results

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

Job ID: 380-23773-1

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

Lab Sample ID: MB 380-20548/1-A
Matrix: Water
Analysis Batch: 20743

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 20548

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		0.099	ug/L		10/13/22 06:14	10/14/22 15:28	1
2,4'-DDE	ND		0.099	ug/L		10/13/22 06:14	10/14/22 15:28	1
2,4'-DDT	ND		0.099	ug/L		10/13/22 06:14	10/14/22 15:28	1
2,4-Dinitrotoluene	ND		0.099	ug/L		10/13/22 06:14	10/14/22 15:28	1
2,6-Dinitrotoluene	ND		0.099	ug/L		10/13/22 06:14	10/14/22 15:28	1
4,4'-DDD	ND		0.099	ug/L		10/13/22 06:14	10/14/22 15:28	1
4,4'-DDE	ND		0.099	ug/L		10/13/22 06:14	10/14/22 15:28	1
4,4'-DDT	ND		0.099	ug/L		10/13/22 06:14	10/14/22 15:28	1
Acenaphthene	ND		0.099	ug/L		10/13/22 06:14	10/14/22 15:28	1
Acenaphthylene	ND		0.099	ug/L		10/13/22 06:14	10/14/22 15:28	1
Acetochlor	ND		0.099	ug/L		10/13/22 06:14	10/14/22 15:28	1
Alachlor	ND		0.050	ug/L		10/13/22 06:14	10/14/22 15:28	1
alpha-BHC	ND		0.099	ug/L		10/13/22 06:14	10/14/22 15:28	1
alpha-Chlordane	ND		0.050	ug/L		10/13/22 06:14	10/14/22 15:28	1
Anthracene	ND		0.020	ug/L		10/13/22 06:14	10/14/22 15:28	1
Atrazine	ND		0.050	ug/L		10/13/22 06:14	10/14/22 15:28	1
Benz(a)anthracene	ND		0.050	ug/L		10/13/22 06:14	10/14/22 15:28	1
Benzo[a]pyrene	ND		0.020	ug/L		10/13/22 06:14	10/14/22 15:28	1
Benzo[b]fluoranthene	ND		0.020	ug/L		10/13/22 06:14	10/14/22 15:28	1
Benzo[g,h,i]perylene	ND		0.050	ug/L		10/13/22 06:14	10/14/22 15:28	1
Benzo[k]fluoranthene	ND		0.020	ug/L		10/13/22 06:14	10/14/22 15:28	1
beta-BHC	ND		0.099	ug/L		10/13/22 06:14	10/14/22 15:28	1
Bromacil	ND		0.099	ug/L		10/13/22 06:14	10/14/22 15:28	1
Butachlor	ND		0.050	ug/L		10/13/22 06:14	10/14/22 15:28	1
Butylbenzylphthalate	ND		0.50	ug/L		10/13/22 06:14	10/14/22 15:28	1
Caffeine	ND		0.050	ug/L		10/13/22 06:14	10/14/22 15:28	1
Chlorobenzilate	ND		0.099	ug/L		10/13/22 06:14	10/14/22 15:28	1
Chloroneb	ND		0.099	ug/L		10/13/22 06:14	10/14/22 15:28	1
Chlorothalonil (Draconil, Bravo)	ND		0.099	ug/L		10/13/22 06:14	10/14/22 15:28	1
Chlorpyrifos	ND		0.050	ug/L		10/13/22 06:14	10/14/22 15:28	1
Chrysene	ND		0.020	ug/L		10/13/22 06:14	10/14/22 15:28	1
delta-BHC	ND		0.099	ug/L		10/13/22 06:14	10/14/22 15:28	1
Di(2-ethylhexyl)adipate	ND		0.60	ug/L		10/13/22 06:14	10/14/22 15:28	1
Bis(2-ethylhexyl) phthalate	ND		0.60	ug/L		10/13/22 06:14	10/14/22 15:28	1
Diazinon (Qualitative)	ND		0.099	ug/L		10/13/22 06:14	10/14/22 15:28	1
Dibenz(a,h)anthracene	ND		0.050	ug/L		10/13/22 06:14	10/14/22 15:28	1
Diclorvos (DDVP)	ND		0.050	ug/L		10/13/22 06:14	10/14/22 15:28	1
Dieldrin	ND		0.20	ug/L		10/13/22 06:14	10/14/22 15:28	1
Diethylphthalate	ND		0.50	ug/L		10/13/22 06:14	10/14/22 15:28	1
Dimethoate	ND		0.099	ug/L		10/13/22 06:14	10/14/22 15:28	1
Dimethylphthalate	ND		0.50	ug/L		10/13/22 06:14	10/14/22 15:28	1
Di-n-butyl phthalate	ND		0.99	ug/L		10/13/22 06:14	10/14/22 15:28	1
Di-n-octyl phthalate	ND		0.099	ug/L		10/13/22 06:14	10/14/22 15:28	1
Endosulfan I (Alpha)	ND		0.099	ug/L		10/13/22 06:14	10/14/22 15:28	1
Endosulfan II (Beta)	ND		0.099	ug/L		10/13/22 06:14	10/14/22 15:28	1
Endosulfan sulfate	ND		0.099	ug/L		10/13/22 06:14	10/14/22 15:28	1
Endrin	ND		0.099	ug/L		10/13/22 06:14	10/14/22 15:28	1
Endrin aldehyde	ND		0.099	ug/L		10/13/22 06:14	10/14/22 15:28	1

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QC Sample Results

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

Job ID: 380-23773-1

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

Lab Sample ID: MB 380-20548/1-A
Matrix: Water
Analysis Batch: 20743

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 20548

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
EPTC	ND		0.099	ug/L		10/13/22 06:14	10/14/22 15:28	1
Fluoranthene	ND		0.099	ug/L		10/13/22 06:14	10/14/22 15:28	1
Fluorene	ND		0.050	ug/L		10/13/22 06:14	10/14/22 15:28	1
gamma-Chlordane	ND		0.050	ug/L		10/13/22 06:14	10/14/22 15:28	1
Heptachlor	ND		0.040	ug/L		10/13/22 06:14	10/14/22 15:28	1
Heptachlor epoxide (isomer B)	ND		0.050	ug/L		10/13/22 06:14	10/14/22 15:28	1
Hexachlorobenzene	ND		0.050	ug/L		10/13/22 06:14	10/14/22 15:28	1
Hexachlorocyclopentadiene	ND		0.050	ug/L		10/13/22 06:14	10/14/22 15:28	1
Indeno[1,2,3-cd]pyrene	ND		0.050	ug/L		10/13/22 06:14	10/14/22 15:28	1
Isophorone	ND		0.50	ug/L		10/13/22 06:14	10/14/22 15:28	1
Lindane	ND		0.040	ug/L		10/13/22 06:14	10/14/22 15:28	1
Malathion	ND		0.099	ug/L		10/13/22 06:14	10/14/22 15:28	1
Methoxychlor	ND		0.099	ug/L		10/13/22 06:14	10/14/22 15:28	1
Metolachlor	ND		0.050	ug/L		10/13/22 06:14	10/14/22 15:28	1
Metribuzin	ND		0.050	ug/L		10/13/22 06:14	10/14/22 15:28	1
Molinate	ND		0.099	ug/L		10/13/22 06:14	10/14/22 15:28	1
Naphthalene	ND		0.30	ug/L		10/13/22 06:14	10/14/22 15:28	1
Parathion	ND		0.099	ug/L		10/13/22 06:14	10/14/22 15:28	1
Pendimethalin (Penoxaline)	ND		0.099	ug/L		10/13/22 06:14	10/14/22 15:28	1
Total Permethrin (mixed isomers)	ND		0.20	ug/L		10/13/22 06:14	10/14/22 15:28	1
Phenanthrene	ND		0.040	ug/L		10/13/22 06:14	10/14/22 15:28	1
Propachlor	ND		0.050	ug/L		10/13/22 06:14	10/14/22 15:28	1
Pyrene	ND		0.050	ug/L		10/13/22 06:14	10/14/22 15:28	1
Simazine	ND		0.050	ug/L		10/13/22 06:14	10/14/22 15:28	1
Terbacil	ND		0.099	ug/L		10/13/22 06:14	10/14/22 15:28	1
Terbutylazine	ND		0.099	ug/L		10/13/22 06:14	10/14/22 15:28	1
Thiobencarb	ND		0.20	ug/L		10/13/22 06:14	10/14/22 15:28	1
trans-Nonachlor	ND		0.050	ug/L		10/13/22 06:14	10/14/22 15:28	1
Trifluralin	ND		0.099	ug/L		10/13/22 06:14	10/14/22 15:28	1

<i>Tentatively Identified Compound</i>	MB Est. Result	MB Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
<i>Decane</i>	1.50	T J N	ug/L		2.44	124-18-5	10/13/22 06:14	10/14/22 15:28	1
<i>Dodecane</i>	0.591	T J N	ug/L		2.60	112-40-3	10/13/22 06:14	10/14/22 15:28	1
<i>Decane, 3,6-dimethyl-</i>	0.631	T J N	ug/L		2.74	17312-53-7	10/13/22 06:14	10/14/22 15:28	1
<i>Heptacosane</i>	0.505	T J N	ug/L		5.80	593-49-7	10/13/22 06:14	10/14/22 15:28	1
<i>n-Hexadecanoic acid</i>	1.35	T J N	ug/L		5.90	57-10-3	10/13/22 06:14	10/14/22 15:28	1
<i>Oxirane, heptadecyl-</i>	0.673	T J N	ug/L		6.13	67860-04-2	10/13/22 06:14	10/14/22 15:28	1
<i>Octadecanoic acid</i>	0.708	T J N	ug/L		6.59	57-11-4	10/13/22 06:14	10/14/22 15:28	1
<i>9-Octadecenamamide, (Z)-</i>	1.48	T J N	ug/L		7.62	301-02-0	10/13/22 06:14	10/14/22 15:28	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	106		70 - 130	10/13/22 06:14	10/14/22 15:28	1
Triphenylphosphate	111		70 - 130	10/13/22 06:14	10/14/22 15:28	1
Perylene-d12	99		70 - 130	10/13/22 06:14	10/14/22 15:28	1

Eurofins Eaton Monrovia

QC Sample Results

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

Job ID: 380-23773-1

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

Lab Sample ID: LCS 380-20548/3-A
Matrix: Water
Analysis Batch: 20743

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 20548

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4'-DDD	1.99	1.97		ug/L		99	70 - 130
2,4'-DDE	1.99	2.00		ug/L		101	70 - 130
2,4'-DDT	1.99	2.01		ug/L		101	70 - 130
2,4-Dinitrotoluene	1.99	1.70		ug/L		85	70 - 130
2,6-Dinitrotoluene	1.99	1.94		ug/L		98	70 - 130
4,4'-DDD	1.99	2.10		ug/L		106	70 - 130
4,4'-DDE	1.99	2.17		ug/L		109	70 - 130
4,4'-DDT	1.99	2.01		ug/L		101	70 - 130
Acenaphthene	1.99	1.95		ug/L		98	70 - 130
Acenaphthylene	1.99	1.94		ug/L		98	70 - 130
Acetochlor	1.99	2.26		ug/L		114	70 - 130
Alachlor	1.99	2.11		ug/L		106	70 - 130
alpha-BHC	1.99	2.25		ug/L		113	70 - 130
alpha-Chlordane	1.99	1.99		ug/L		100	70 - 130
Anthracene	1.99	1.85		ug/L		93	70 - 130
Atrazine	1.99	2.46		ug/L		124	70 - 130
Benz(a)anthracene	1.99	2.16		ug/L		109	70 - 130
Benzo[a]pyrene	1.99	2.33		ug/L		117	70 - 130
Benzo[b]fluoranthene	1.99	2.32		ug/L		117	70 - 130
Benzo[g,h,i]perylene	1.99	2.40		ug/L		121	70 - 130
Benzo[k]fluoranthene	1.99	2.20		ug/L		111	70 - 130
beta-BHC	1.99	2.26		ug/L		114	70 - 130
Bromacil	1.99	2.15		ug/L		108	70 - 130
Butachlor	1.99	2.11		ug/L		106	70 - 130
Butylbenzylphthalate	1.99	2.01		ug/L		101	70 - 130
Caffeine	1.99	1.70		ug/L		86	45 - 137
Chlorobenzilate	1.99	2.08		ug/L		104	70 - 130
Chloroneb	1.99	2.09		ug/L		105	70 - 130
Chlorothalonil (Draconil, Bravo)	1.99	2.16		ug/L		109	70 - 130
Chlorpyrifos	1.99	2.19		ug/L		110	70 - 130
Chrysene	1.99	2.03		ug/L		102	70 - 130
delta-BHC	1.99	2.10		ug/L		106	70 - 130
Di(2-ethylhexyl)adipate	1.99	2.42		ug/L		122	70 - 130
Bis(2-ethylhexyl) phthalate	1.99	2.31		ug/L		116	70 - 130
Diazinon (Qualitative)	1.99	2.44		ug/L		123	15 - 132
Dibenz(a,h)anthracene	1.99	2.15		ug/L		108	70 - 130
Diclorvos (DDVP)	1.99	2.59		ug/L		130	70 - 130
Dieldrin	1.99	2.06		ug/L		104	70 - 130
Diethylphthalate	1.99	2.22		ug/L		111	70 - 130
Dimethoate	1.99	1.24		ug/L		62	35 - 100
Dimethylphthalate	1.99	2.19		ug/L		110	70 - 130
Di-n-butyl phthalate	3.97	4.59		ug/L		116	70 - 130
Di-n-octyl phthalate	1.99	2.15		ug/L		108	70 - 130
Endosulfan I (Alpha)	1.99	1.85		ug/L		93	70 - 130
Endosulfan II (Beta)	1.99	1.99		ug/L		100	70 - 130
Endosulfan sulfate	1.99	2.26		ug/L		114	70 - 130
Endrin	1.99	2.40		ug/L		121	70 - 130
Endrin aldehyde	1.99	2.03		ug/L		102	70 - 130

Eurofins Eaton Monrovia

QC Sample Results

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

Job ID: 380-23773-1

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

Lab Sample ID: LCS 380-20548/3-A
Matrix: Water
Analysis Batch: 20743

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 20548

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
EPTC	1.99	2.08		ug/L		105	70 - 130
Fluoranthene	1.99	2.03		ug/L		102	70 - 130
Fluorene	1.99	2.09		ug/L		105	70 - 130
gamma-Chlordane	1.99	2.10		ug/L		106	70 - 130
Heptachlor	1.99	2.13		ug/L		107	70 - 130
Heptachlor epoxide (isomer B)	1.99	2.23		ug/L		112	70 - 130
Hexachlorobenzene	1.99	1.91		ug/L		96	70 - 130
Hexachlorocyclopentadiene	1.99	2.15		ug/L		108	70 - 130
Indeno[1,2,3-cd]pyrene	1.99	2.35		ug/L		118	70 - 130
Isophorone	1.99	2.38		ug/L		120	70 - 130
Lindane	1.99	2.21		ug/L		111	70 - 130
Malathion	1.99	2.07		ug/L		104	70 - 130
Methoxychlor	1.99	2.34		ug/L		118	70 - 130
Metolachlor	1.99	2.24		ug/L		113	70 - 130
Metribuzin	1.99	1.93		ug/L		97	70 - 130
Molinate	1.99	2.19		ug/L		110	70 - 130
Naphthalene	1.99	2.02		ug/L		102	70 - 130
Parathion	1.99	2.36		ug/L		119	70 - 130
Pendimethalin (Penoxaline)	1.99	1.99		ug/L		100	70 - 130
Phenanthrene	1.99	1.85		ug/L		93	70 - 130
Propachlor	1.99	2.31		ug/L		116	70 - 130
Pyrene	1.99	2.06		ug/L		104	70 - 130
Simazine	1.99	2.53		ug/L		127	70 - 130
Terbacil	1.99	2.24		ug/L		113	70 - 130
Terbutylazine	1.99	2.43		ug/L		123	70 - 130
Thiobencarb	1.99	2.21		ug/L		111	70 - 130
trans-Nonachlor	1.99	2.08		ug/L		105	70 - 130
Trifluralin	1.99	2.06		ug/L		104	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Nitro-m-xylene	103		70 - 130
Triphenylphosphate	108		70 - 130
Perylene-d12	101		70 - 130

Lab Sample ID: LCSD 380-20548/4-A
Matrix: Water
Analysis Batch: 20743

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 20548

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2,4'-DDD	1.98	2.00		ug/L		101	70 - 130	2	20
2,4'-DDE	1.98	2.08		ug/L		105	70 - 130	4	20
2,4'-DDT	1.98	2.05		ug/L		103	70 - 130	2	20
2,4-Dinitrotoluene	1.98	1.66		ug/L		84	70 - 130	2	20
2,6-Dinitrotoluene	1.98	1.94		ug/L		98	70 - 130	0	20
4,4'-DDD	1.98	2.16		ug/L		109	70 - 130	3	20
4,4'-DDE	1.98	2.23		ug/L		112	70 - 130	3	20
4,4'-DDT	1.98	2.02		ug/L		102	70 - 130	0	20
Acenaphthene	1.98	1.95		ug/L		98	70 - 130	0	20

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QC Sample Results

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

Job ID: 380-23773-1

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

Lab Sample ID: LCSD 380-20548/4-A
Matrix: Water
Analysis Batch: 20743

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 20548

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	RPD Limit
							Limits	RPD		
Acenaphthylene	1.98	2.05		ug/L		103	70 - 130	5	20	
Acetochlor	1.98	2.20		ug/L		111	70 - 130	3	20	
Alachlor	1.98	2.14		ug/L		108	70 - 130	1	20	
alpha-BHC	1.98	2.17		ug/L		109	70 - 130	4	20	
alpha-Chlordane	1.98	2.05		ug/L		103	70 - 130	3	20	
Anthracene	1.98	1.96		ug/L		99	70 - 130	6	20	
Atrazine	1.98	2.28		ug/L		115	70 - 130	8	20	
Benz(a)anthracene	1.98	2.27		ug/L		114	70 - 130	5	20	
Benzo[a]pyrene	1.98	2.36		ug/L		119	70 - 130	1	20	
Benzo[b]fluoranthene	1.98	2.37		ug/L		119	70 - 130	2	20	
Benzo[g,h,i]perylene	1.98	2.28		ug/L		115	70 - 130	5	20	
Benzo[k]fluoranthene	1.98	2.36		ug/L		119	70 - 130	7	20	
beta-BHC	1.98	2.18		ug/L		110	70 - 130	4	20	
Bromacil	1.98	2.23		ug/L		112	70 - 130	4	20	
Butachlor	1.98	2.21		ug/L		111	70 - 130	4	20	
Butylbenzylphthalate	1.98	2.04		ug/L		103	70 - 130	2	20	
Caffeine	1.98	1.67		ug/L		84	45 - 137	2	20	
Chlorobenzilate	1.98	1.91		ug/L		96	70 - 130	8	20	
Chloroneb	1.98	2.10		ug/L		106	70 - 130	1	20	
Chlorothalonil (Draconil, Bravo)	1.98	2.06		ug/L		104	70 - 130	5	20	
Chlorpyrifos	1.98	2.13		ug/L		108	70 - 130	3	20	
Chrysene	1.98	2.05		ug/L		103	70 - 130	1	20	
delta-BHC	1.98	2.11		ug/L		106	70 - 130	1	20	
Di(2-ethylhexyl)adipate	1.98	2.47		ug/L		124	70 - 130	2	20	
Bis(2-ethylhexyl) phthalate	1.98	2.31		ug/L		116	70 - 130	0	20	
Diazinon (Qualitative)	1.98	2.07		ug/L		104	15 - 132	17	20	
Dibenz(a,h)anthracene	1.98	2.05		ug/L		103	70 - 130	5	20	
Diclorvos (DDVP)	1.98	2.52		ug/L		127	70 - 130	3	20	
Dieldrin	1.98	2.12		ug/L		107	70 - 130	3	20	
Diethylphthalate	1.98	2.22		ug/L		112	70 - 130	0	20	
Dimethoate	1.98	1.09		ug/L		55	35 - 100	13	20	
Dimethylphthalate	1.98	2.25		ug/L		114	70 - 130	3	20	
Di-n-butyl phthalate	3.97	4.49		ug/L		113	70 - 130	2	20	
Di-n-octyl phthalate	1.98	2.28		ug/L		115	70 - 130	6	20	
Endosulfan I (Alpha)	1.98	1.92		ug/L		97	70 - 130	4	20	
Endosulfan II (Beta)	1.98	2.05		ug/L		103	70 - 130	3	20	
Endosulfan sulfate	1.98	2.35		ug/L		119	70 - 130	4	20	
Endrin	1.98	2.40		ug/L		121	70 - 130	0	20	
Endrin aldehyde	1.98	2.07		ug/L		105	70 - 130	2	20	
EPTC	1.98	2.36		ug/L		119	70 - 130	13	20	
Fluoranthene	1.98	2.07		ug/L		104	70 - 130	2	20	
Fluorene	1.98	2.08		ug/L		105	70 - 130	1	20	
gamma-Chlordane	1.98	2.16		ug/L		109	70 - 130	3	20	
Heptachlor	1.98	2.12		ug/L		107	70 - 130	0	20	
Heptachlor epoxide (isomer B)	1.98	2.34		ug/L		118	70 - 130	4	20	
Hexachlorobenzene	1.98	1.96		ug/L		99	70 - 130	3	20	
Hexachlorocyclopentadiene	1.98	2.38		ug/L		120	70 - 130	10	20	
Indeno[1,2,3-cd]pyrene	1.98	2.26		ug/L		114	70 - 130	4	20	
Isophorone	1.98	2.33		ug/L		117	70 - 130	2	20	

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QC Sample Results

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

Job ID: 380-23773-1

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

Lab Sample ID: LCSD 380-20548/4-A
Matrix: Water
Analysis Batch: 20743

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 20548

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Lindane	1.98	2.10		ug/L		106	70 - 130	5	20
Malathion	1.98	2.11		ug/L		106	70 - 130	2	20
Methoxychlor	1.98	2.32		ug/L		117	70 - 130	1	20
Metolachlor	1.98	2.20		ug/L		111	70 - 130	2	20
Metribuzin	1.98	1.92		ug/L		97	70 - 130	1	20
Molinate	1.98	2.19		ug/L		110	70 - 130	0	20
Naphthalene	1.98	2.06		ug/L		104	70 - 130	2	20
Parathion	1.98	2.19		ug/L		110	70 - 130	8	20
Pendimethalin (Penoxaline)	1.98	2.06		ug/L		104	70 - 130	3	20
Phenanthrene	1.98	1.93		ug/L		97	70 - 130	5	20
Propachlor	1.98	2.27		ug/L		114	70 - 130	2	20
Pyrene	1.98	2.07		ug/L		104	70 - 130	0	20
Simazine	1.98	2.31		ug/L		117	70 - 130	9	20
Terbacil	1.98	2.27		ug/L		114	70 - 130	1	20
Terbutylazine	1.98	2.22		ug/L		112	70 - 130	9	20
Thiobencarb	1.98	2.14		ug/L		108	70 - 130	3	20
trans-Nonachlor	1.98	2.09		ug/L		105	70 - 130	0	20
Trifluralin	1.98	2.03		ug/L		102	70 - 130	1	20

Surrogate	LCSD %Recovery	LCSD Qualifier	LCSD Limits
2-Nitro-m-xylene	107		70 - 130
Triphenylphosphate	109		70 - 130
Perylene-d12	100		70 - 130

Lab Sample ID: MRL 380-20548/2-A
Matrix: Water
Analysis Batch: 20743

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 20548

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
2,4'-DDD	0.0995	0.132		ug/L		132	50 - 150
2,4'-DDE	0.0995	0.103		ug/L		103	50 - 150
2,4'-DDT	0.0995	0.125		ug/L		126	50 - 150
2,4-Dinitrotoluene	0.0995	0.128		ug/L		129	50 - 150
2,6-Dinitrotoluene	0.0995	0.0761	J	ug/L		77	50 - 150
4,4'-DDD	0.0995	0.104		ug/L		104	50 - 150
4,4'-DDE	0.0995	0.104		ug/L		105	50 - 150
4,4'-DDT	0.0995	0.123		ug/L		123	50 - 150
Acenaphthene	0.0995	0.0958	J	ug/L		96	50 - 150
Acenaphthylene	0.0995	0.0782	J	ug/L		79	50 - 150
Acetochlor	0.0497	0.0498	J	ug/L		100	50 - 150
Alachlor	0.0497	0.0561		ug/L		113	50 - 150
alpha-BHC	0.0995	0.115		ug/L		116	50 - 150
alpha-Chlordane	0.0497	0.0523		ug/L		105	50 - 150
Anthracene	0.0199	0.0197	J	ug/L		99	50 - 150
Atrazine	0.0497	0.0531		ug/L		107	50 - 150
Benz(a)anthracene	0.0497	0.0506		ug/L		102	50 - 150
Benzo[a]pyrene	0.0199	0.0223		ug/L		112	50 - 150
Benzo[b]fluoranthene	0.0199	0.0211		ug/L		106	50 - 150

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QC Sample Results

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

Job ID: 380-23773-1

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

Lab Sample ID: MRL 380-20548/2-A

Matrix: Water

Analysis Batch: 20743

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 20548

Analyte	Spike Added	MRL	MRL	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Benzo[g,h,i]perylene	0.0497	0.0479	J	ug/L		96	50 - 150
Benzo[k]fluoranthene	0.0199	0.0182	J	ug/L		91	50 - 150
beta-BHC	0.0995	0.115		ug/L		115	50 - 150
Bromacil	0.0995	0.148		ug/L		149	50 - 150
Butachlor	0.0497	0.0740		ug/L		149	50 - 150
Butylbenzylphthalate	0.149	0.180	J	ug/L		121	50 - 150
Caffeine	0.0497	0.0357	J	ug/L		72	50 - 150
Chlorobenzilate	0.0995	0.152	^3+	ug/L		153	50 - 150
Chloroneb	0.0995	0.128		ug/L		129	50 - 150
Chlorothalonil (Draconil, Bravo)	0.0995	0.120		ug/L		121	50 - 150
Chlorpyrifos	0.0497	0.0626		ug/L		126	50 - 150
Chrysene	0.0199	0.0218		ug/L		109	50 - 150
delta-BHC	0.0995	0.135		ug/L		136	50 - 150
Di(2-ethylhexyl)adipate	0.298	0.347	J	ug/L		116	50 - 150
Bis(2-ethylhexyl) phthalate	0.597	0.748		ug/L		125	50 - 150
Diazinon (Qualitative)	0.0995	0.104		ug/L		104	15 - 132
Dibenz(a,h)anthracene	0.0497	0.0656		ug/L		132	50 - 150
Diclorvos (DDVP)	0.0497	0.0607		ug/L		122	50 - 150
Dieldrin	0.0995	0.106	J	ug/L		107	50 - 150
Diethylphthalate	0.149	0.163	J	ug/L		109	50 - 150
Dimethoate	0.0995	0.0570	J	ug/L		57	35 - 100
Dimethylphthalate	0.298	0.308	J	ug/L		103	50 - 150
Di-n-butyl phthalate	0.298	0.382	J	ug/L		128	49 - 243
Di-n-octyl phthalate	0.0995	0.138		ug/L		139	50 - 150
Endosulfan I (Alpha)	0.0995	0.0911	J	ug/L		92	50 - 150
Endosulfan II (Beta)	0.0995	0.114		ug/L		115	50 - 150
Endosulfan sulfate	0.0995	0.107		ug/L		108	50 - 150
Endrin	0.0995	0.114		ug/L		115	50 - 150
Endrin aldehyde	0.0995	0.141		ug/L		141	50 - 150
EPTC	0.0995	0.102		ug/L		103	50 - 150
Fluoranthene	0.0497	0.0503	J	ug/L		101	50 - 150
Fluorene	0.0497	ND		ug/L		100	50 - 150
gamma-Chlordane	0.0497	0.0524		ug/L		105	50 - 150
Heptachlor	0.0398	0.0527		ug/L		132	50 - 150
Heptachlor epoxide (isomer B)	0.0497	0.0560		ug/L		113	50 - 150
Hexachlorobenzene	0.0497	0.0652		ug/L		131	50 - 150
Hexachlorocyclopentadiene	0.0497	0.0484	J	ug/L		97	50 - 150
Indeno[1,2,3-cd]pyrene	0.0497	0.0483	J	ug/L		97	50 - 150
Isophorone	0.0995	0.116	J	ug/L		116	50 - 150
Lindane	0.0497	0.0508		ug/L		102	50 - 150
Malathion	0.0995	0.107		ug/L		108	50 - 150
Methoxychlor	0.0995	0.101		ug/L		101	50 - 150
Metolachlor	0.0497	0.0550		ug/L		111	50 - 150
Metribuzin	0.0497	0.0649		ug/L		131	50 - 150
Molinate	0.0995	0.105		ug/L		106	50 - 150
Naphthalene	0.0995	0.0997	J	ug/L		100	50 - 150
Parathion	0.0995	0.100		ug/L		101	50 - 150
Pendimethalin (Penoxaline)	0.0995	0.119		ug/L		120	50 - 150
Phenanthrene	0.0199	0.0213	J	ug/L		107	50 - 150

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QC Sample Results

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

Job ID: 380-23773-1

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

Lab Sample ID: MRL 380-20548/2-A
Matrix: Water
Analysis Batch: 20743

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 20548

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Propachlor	0.0497	0.0535		ug/L		108	50 - 150
Pyrene	0.0497	0.0524		ug/L		105	50 - 150
Simazine	0.0497	0.0534		ug/L		107	50 - 150
Terbacil	0.0995	0.113		ug/L		113	50 - 150
Terbutylazine	0.0995	0.106		ug/L		107	50 - 150
Thiobencarb	0.0995	0.121	J	ug/L		121	50 - 150
trans-Nonachlor	0.0497	0.0496	J	ug/L		100	50 - 150
Trifluralin	0.0995	0.115		ug/L		116	50 - 150

Surrogate	MRL %Recovery	MRL Qualifier	Limits
2-Nitro-m-xylene	104		70 - 130
Triphenylphosphate	106		70 - 130
Perylene-d12	99		70 - 130

Lab Sample ID: 380-23677-AZ-1-A MS
Matrix: Water
Analysis Batch: 20743

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 20548

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
2,4'-DDD	ND		1.98	2.07		ug/L		105	70 - 130
2,4'-DDE	ND		1.98	2.19		ug/L		111	70 - 130
2,4'-DDT	ND		1.98	2.19		ug/L		111	70 - 130
2,4-Dinitrotoluene	ND		1.98	1.88		ug/L		95	70 - 130
2,6-Dinitrotoluene	ND		1.98	2.15		ug/L		108	70 - 130
4,4'-DDD	ND		1.98	2.29		ug/L		115	70 - 130
4,4'-DDE	ND		1.98	2.13		ug/L		108	70 - 130
4,4'-DDT	ND		1.98	2.18		ug/L		110	70 - 130
Acenaphthene	ND		1.98	1.97		ug/L		99	70 - 130
Acenaphthylene	ND		1.98	1.98		ug/L		100	70 - 130
Acetochlor	ND		1.98	2.29		ug/L		116	70 - 130
Alachlor	ND		1.98	2.15		ug/L		108	70 - 130
alpha-BHC	ND		1.98	2.22		ug/L		112	70 - 130
alpha-Chlordane	ND		1.98	1.78		ug/L		90	70 - 130
Anthracene	ND		1.98	1.68		ug/L		85	70 - 130
Atrazine	ND		1.98	2.31		ug/L		116	70 - 130
Benz(a)anthracene	ND		1.98	2.13		ug/L		107	70 - 130
Benzo[a]pyrene	ND		1.98	2.21		ug/L		112	70 - 130
Benzo[b]fluoranthene	ND		1.98	2.38		ug/L		120	70 - 130
Benzo[g,h,i]perylene	ND		1.98	2.37		ug/L		120	70 - 130
Benzo[k]fluoranthene	ND		1.98	2.27		ug/L		115	70 - 130
beta-BHC	ND		1.98	2.31		ug/L		117	70 - 130
Bromacil	ND		1.98	2.14		ug/L		108	70 - 130
Butachlor	ND		1.98	2.19		ug/L		111	70 - 130
Butylbenzylphthalate	ND		1.98	2.11		ug/L		107	70 - 130
Caffeine	ND		1.98	2.14		ug/L		108	46 - 144
Chlorobenzilate	ND	^3+	1.98	2.09		ug/L		106	70 - 130
Chloroneb	ND		1.98	2.13		ug/L		107	70 - 130
Chlorothalonil (Draconil, Bravo)	ND		1.98	2.12		ug/L		107	70 - 130

Eurofins Eaton Monrovia

QC Sample Results

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

Job ID: 380-23773-1

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

Lab Sample ID: 380-23677-AZ-1-A MS

Matrix: Water

Analysis Batch: 20743

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 20548

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec
	Result	Qualifier	Added	Result	Qualifier				Limits
Chlorpyrifos	ND		1.98	2.21		ug/L		111	70 - 130
Chrysene	ND		1.98	2.06		ug/L		104	70 - 130
delta-BHC	ND		1.98	2.11		ug/L		106	70 - 130
Di(2-ethylhexyl)adipate	ND		1.98	2.52		ug/L		127	70 - 130
Bis(2-ethylhexyl) phthalate	ND		1.98	2.33		ug/L		118	70 - 130
Diazinon (Qualitative)	ND		1.98	2.23		ug/L		112	15 - 132
Dibenz(a,h)anthracene	ND		1.98	2.17		ug/L		110	70 - 130
Diclorvos (DDVP)	ND		1.98	2.58		ug/L		130	70 - 130
Dieldrin	ND		1.98	2.23		ug/L		113	70 - 130
Diethylphthalate	ND		1.98	2.23		ug/L		113	70 - 130
Dimethoate	ND		1.98	1.45		ug/L		73	34 - 111
Dimethylphthalate	ND		1.98	2.20		ug/L		111	70 - 130
Di-n-butyl phthalate	ND		3.96	4.78		ug/L		121	70 - 130
Di-n-octyl phthalate	ND		1.98	2.22		ug/L		112	70 - 130
Endosulfan I (Alpha)	ND		1.98	1.95		ug/L		98	70 - 130
Endosulfan II (Beta)	ND		1.98	2.30		ug/L		116	70 - 130
Endosulfan sulfate	ND		1.98	2.42		ug/L		122	70 - 130
Endrin	ND		1.98	2.52		ug/L		127	70 - 130
Endrin aldehyde	ND		1.98	1.71		ug/L		86	70 - 130
EPTC	ND		1.98	2.12		ug/L		107	70 - 130
Fluoranthene	ND		1.98	2.09		ug/L		106	70 - 130
Fluorene	ND		1.98	2.10		ug/L		106	70 - 130
gamma-Chlordane	ND		1.98	1.91		ug/L		96	70 - 130
Heptachlor	ND		1.98	2.19		ug/L		110	70 - 130
Heptachlor epoxide (isomer B)	ND		1.98	1.99		ug/L		100	70 - 130
Hexachlorobenzene	ND		1.98	2.02		ug/L		102	70 - 130
Hexachlorocyclopentadiene	ND		1.98	2.22		ug/L		112	70 - 130
Indeno[1,2,3-cd]pyrene	ND		1.98	2.31		ug/L		116	70 - 130
Isophorone	ND		1.98	2.33		ug/L		118	70 - 130
Lindane	ND		1.98	2.17		ug/L		110	70 - 130
Malathion	ND		1.98	2.07		ug/L		104	70 - 130
Methoxychlor	ND		1.98	2.36		ug/L		119	70 - 130
Metolachlor	ND		1.98	2.22		ug/L		112	70 - 130
Metribuzin	ND		1.98	1.90		ug/L		96	70 - 130
Molinate	ND		1.98	2.22		ug/L		112	70 - 130
Naphthalene	ND		1.98	2.06		ug/L		104	70 - 130
Parathion	ND		1.98	2.34		ug/L		118	70 - 130
Pendimethalin (Penoxaline)	ND		1.98	2.12		ug/L		107	70 - 130
Phenanthrene	ND		1.98	1.89		ug/L		95	70 - 130
Propachlor	ND		1.98	2.31		ug/L		116	70 - 130
Pyrene	ND		1.98	2.14		ug/L		108	70 - 130
Simazine	ND		1.98	2.37		ug/L		119	70 - 130
Terbacil	ND		1.98	2.25		ug/L		114	70 - 130
Terbutylazine	ND		1.98	2.26		ug/L		114	70 - 130
Thiobencarb	ND		1.98	2.25		ug/L		113	70 - 130
trans-Nonachlor	ND		1.98	2.06		ug/L		104	70 - 130
Trifluralin	ND		1.98	2.06		ug/L		104	70 - 130

Eurofins Eaton Monrovia

QC Sample Results

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

Job ID: 380-23773-1

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

Lab Sample ID: 380-23677-AZ-1-A MS
Matrix: Water
Analysis Batch: 20743

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 20548

Surrogate	%Recovery	MS MS Qualifier	Limits
2-Nitro-m-xylene	109		70 - 130
Triphenylphosphate	100		70 - 130
Perylene-d12	100		70 - 130

Lab Sample ID: 380-23209-AV-1-A DU
Matrix: Water
Analysis Batch: 20743

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 20548

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	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	^3+	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		ND		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

Eurofins Eaton Monrovia

QC Sample Results

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

Job ID: 380-23773-1

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

Lab Sample ID: 380-23209-AV-1-A DU
Matrix: Water
Analysis Batch: 20743

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 20548

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	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		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
Terbutylazine	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	105		70 - 130
Triphenylphosphate	111		70 - 130
Perylene-d12	99		70 - 130

QC Sample Results

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

Job ID: 380-23773-1

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

Lab Sample ID: 100788-B1
Matrix: BlankMatrix
Analysis Batch: O-38150

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: O-38150_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		0.005	0.001	µg/L		10/10/22 00:00	10/16/22 05:44	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		10/10/22 00:00	10/16/22 05:44	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		10/10/22 00:00	10/16/22 05:44	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		10/10/22 00:00	10/16/22 05:44	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		10/10/22 00:00	10/16/22 05:44	1
Acenaphthene	ND		0.005	0.001	µg/L		10/10/22 00:00	10/16/22 05:44	1
Acenaphthylene	ND		0.005	0.001	µg/L		10/10/22 00:00	10/16/22 05:44	1
Anthracene	ND		0.005	0.001	µg/L		10/10/22 00:00	10/16/22 05:44	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		10/10/22 00:00	10/16/22 05:44	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		10/10/22 00:00	10/16/22 05:44	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		10/10/22 00:00	10/16/22 05:44	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		10/10/22 00:00	10/16/22 05:44	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		10/10/22 00:00	10/16/22 05:44	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		10/10/22 00:00	10/16/22 05:44	1
Biphenyl	ND		0.005	0.001	µg/L		10/10/22 00:00	10/16/22 05:44	1
Chrysene	ND		0.005	0.001	µg/L		10/10/22 00:00	10/16/22 05:44	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		10/10/22 00:00	10/16/22 05:44	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		10/10/22 00:00	10/16/22 05:44	1
Dibenzothiophene	ND		0.005	0.001	µg/L		10/10/22 00:00	10/16/22 05:44	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		10/10/22 00:00	10/16/22 05:44	1
Fluoranthene	ND		0.005	0.001	µg/L		10/10/22 00:00	10/16/22 05:44	1
Fluorene	ND		0.005	0.001	µg/L		10/10/22 00:00	10/16/22 05:44	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		10/10/22 00:00	10/16/22 05:44	1
Naphthalene	ND		0.005	0.001	µg/L		10/10/22 00:00	10/16/22 05:44	1
Perylene	ND		0.005	0.001	µg/L		10/10/22 00:00	10/16/22 05:44	1
Phenanthrene	ND		0.005	0.001	µg/L		10/10/22 00:00	10/16/22 05:44	1
Pyrene	ND		0.005	0.001	µg/L		10/10/22 00:00	10/16/22 05:44	1

Surrogate	Blank %Recovery	Blank Qualifier	Limits	Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	111		27 - 133	10/10/22 00:00	10/16/22 05:44	1
(d10-Phenanthrene)	111		43 - 129	10/10/22 00:00	10/16/22 05:44	1
(d12-Chrysene)	95		52 - 144	10/10/22 00:00	10/16/22 05:44	1
(d12-Perylene)	99		36 - 161	10/10/22 00:00	10/16/22 05:44	1
(d8-Naphthalene)	118		25 - 125	10/10/22 00:00	10/16/22 05:44	1

Lab Sample ID: 100788-BS1
Matrix: BlankMatrix
Analysis Batch: O-38150

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: O-38150_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1-Methylnaphthalene	0.5	0.574		µg/L		115	31 - 128
1-Methylphenanthrene	0.5	0.583		µg/L		117	66 - 127
2,3,5-Trimethylnaphthalene	0.5	0.541		µg/L		108	55 - 122
2,6-Dimethylnaphthalene	0.5	0.513		µg/L		103	48 - 120
2-Methylnaphthalene	0.5	0.616		µg/L		123	47 - 130
Acenaphthene	0.5	0.595		µg/L		119	53 - 131
Acenaphthylene	0.5	0.518		µg/L		104	43 - 140
Anthracene	0.5	0.503		µg/L		101	58 - 135

Eurofins Eaton Monrovia

QC Sample Results

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

Job ID: 380-23773-1

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

Lab Sample ID: 100788-BS1
Matrix: BlankMatrix
Analysis Batch: O-38150

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: O-38150_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benz[a]anthracene	0.5	0.419		µg/L		84	55 - 145
Benzo[a]pyrene	0.5	0.483		µg/L		97	51 - 143
Benzo[b]fluoranthene	0.5	0.489		µg/L		98	46 - 165
Benzo[e]pyrene	0.5	0.482		µg/L		96	42 - 152
Benzo[g,h,i]perylene	0.5	0.506		µg/L		101	63 - 133
Benzo[k]fluoranthene	0.5	0.455		µg/L		91	56 - 145
Biphenyl	0.5	0.472		µg/L		94	56 - 119
Chrysene	0.5	0.445		µg/L		89	56 - 141
Dibenz[a,h]anthracene	0.5	0.499		µg/L		100	55 - 150
Dibenzo[a,l]pyrene	0.5	0.275		µg/L		55	50 - 150
Dibenzothiophene	0.5	0.497		µg/L		99	75 - 113
Disalicylidenepropanediamine	50	30.1		µg/L		60	50 - 150
Fluoranthene	0.5	0.587		µg/L		117	60 - 146
Fluorene	0.5	0.654		µg/L		131	58 - 131
Indeno[1,2,3-cd]pyrene	0.5	0.539		µg/L		108	50 - 151
Naphthalene	0.5	0.475		µg/L		95	41 - 126
Perylene	0.5	0.476		µg/L		95	48 - 141
Phenanthrene	0.5	0.489		µg/L		98	67 - 127
Pyrene	0.5	0.564		µg/L		113	54 - 156

Surrogate	LCS %Recovery	LCS Qualifier	Limits
(d10-Acenaphthene)	110		27 - 133
(d10-Phenanthrene)	110		43 - 129
(d12-Chrysene)	97		52 - 144
(d12-Perylene)	107		36 - 161
(d8-Naphthalene)	115		25 - 125

Lab Sample ID: 100788-BS2
Matrix: BlankMatrix
Analysis Batch: O-38150

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: O-38150_P

Analyte	Spike Added	LCS DUP Result	LCS DUP Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1-Methylnaphthalene	0.5	0.584		µg/L		117	31 - 128	2	30
1-Methylphenanthrene	0.5	0.498		µg/L		100	66 - 127	16	30
2,3,5-Trimethylnaphthalene	0.5	0.578		µg/L		116	55 - 122	7	30
2,6-Dimethylnaphthalene	0.5	0.493		µg/L		99	48 - 120	4	30
2-Methylnaphthalene	0.5	0.543		µg/L		109	47 - 130	12	30
Acenaphthene	0.5	0.539		µg/L		108	53 - 131	10	30
Acenaphthylene	0.5	0.496		µg/L		99	43 - 140	5	30
Anthracene	0.5	0.52		µg/L		104	58 - 135	3	30
Benz[a]anthracene	0.5	0.391		µg/L		78	55 - 145	7	30
Benzo[a]pyrene	0.5	0.506		µg/L		101	51 - 143	4	30
Benzo[b]fluoranthene	0.5	0.52		µg/L		104	46 - 165	6	30
Benzo[e]pyrene	0.5	0.519		µg/L		104	42 - 152	8	30
Benzo[g,h,i]perylene	0.5	0.533		µg/L		107	63 - 133	6	30
Benzo[k]fluoranthene	0.5	0.486		µg/L		97	56 - 145	6	30
Biphenyl	0.5	0.514		µg/L		103	56 - 119	9	30
Chrysene	0.5	0.399		µg/L		80	56 - 141	11	30

Eurofins Eaton Monrovia

QC Sample Results

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

Job ID: 380-23773-1

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

Lab Sample ID: 100788-BS2
Matrix: BlankMatrix
Analysis Batch: O-38150

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: O-38150_P

Analyte	Spike Added	LCS DUP Result	LCS DUP Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Dibenz[a,h]anthracene	0.5	0.527		µg/L		105	55 - 150	5	30
Dibenzo[a,i]pyrene	0.5	0.269		µg/L		54	50 - 150	2	30
Dibenzothiophene	0.5	0.522		µg/L		104	75 - 113	5	30
Disalicylidenepropanediamine	50	31		µg/L		62	50 - 150	3	30
Fluoranthene	0.5	0.501		µg/L		100	60 - 146	16	30
Fluorene	0.5	0.615		µg/L		123	58 - 131	6	30
Indeno[1,2,3-cd]pyrene	0.5	0.567		µg/L		113	50 - 151	5	30
Naphthalene	0.5	0.394		µg/L		79	41 - 126	18	30
Perylene	0.5	0.508		µg/L		102	48 - 141	7	30
Phenanthrene	0.5	0.517		µg/L		103	67 - 127	5	30
Pyrene	0.5	0.499		µg/L		100	54 - 156	12	30

Surrogate	LCS DUP %Recovery	LCS DUP Qualifier	Limits
(d10-Acenaphthene)	111		27 - 133
(d10-Phenanthrene)	109		43 - 129
(d12-Chrysene)	82		52 - 144
(d12-Perylene)	105		36 - 161
(d8-Naphthalene)	89		25 - 125

Method: 8015 Diesel LL (EAL) and Motor Oil - 8015 - TPH DRO/ORO

Lab Sample ID: 22DSJ049WB
Matrix: WATER
Analysis Batch: 22DSJ049W

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			10/24/22 19:18	1
MOTOR OIL	ND	U	0.050		mg/L			10/24/22 19:18	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
BROMOBENZENE					10/24/22 19:18	1
HEXACOSANE					10/24/22 19:18	1

Lab Sample ID: 22DSJ049WL
Matrix: WATER
Analysis Batch: 22DSJ049W

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	103		60 - 130
HEXACOSANE	99		60 - 130

QC Sample Results

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

Job ID: 380-23773-1

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

Lab Sample ID: 22VGH7J09B
Matrix: WATER
Analysis Batch: 22VGH7J09

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			10/17/22 21:22	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
BROMOFLUOROBENZENE								10/17/22 21:22	1

Lab Sample ID: 22VGH7J09L
Matrix: WATER
Analysis Batch: 22VGH7J09

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	0.426		mg/L		85	60 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
BROMOFLUOROBENZENE	103		70 - 130				

QC Association Summary

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

Job ID: 380-23773-1

GC/MS Semi VOA

Prep Batch: 20548

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-23773-1	HALAWA SHAFT VIEWING POOL	Total/NA	Drinking Water	525.2	
MB 380-20548/1-A	Method Blank	Total/NA	Water	525.2	
LCS 380-20548/3-A	Lab Control Sample	Total/NA	Water	525.2	
LCSD 380-20548/4-A	Lab Control Sample Dup	Total/NA	Water	525.2	
MRL 380-20548/2-A	Lab Control Sample	Total/NA	Water	525.2	
380-23677-AZ-1-A MS	Matrix Spike	Total/NA	Water	525.2	
380-23209-AV-1-A DU	Duplicate	Total/NA	Water	525.2	

Analysis Batch: 20743

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-23773-1	HALAWA SHAFT VIEWING POOL	Total/NA	Drinking Water	525.2	20548
MB 380-20548/1-A	Method Blank	Total/NA	Water	525.2	20548
LCS 380-20548/3-A	Lab Control Sample	Total/NA	Water	525.2	20548
LCSD 380-20548/4-A	Lab Control Sample Dup	Total/NA	Water	525.2	20548
MRL 380-20548/2-A	Lab Control Sample	Total/NA	Water	525.2	20548
380-23677-AZ-1-A MS	Matrix Spike	Total/NA	Water	525.2	20548
380-23209-AV-1-A DU	Duplicate	Total/NA	Water	525.2	20548

Subcontract

Analysis Batch: O-38150

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-23773-1	HALAWA SHAFT VIEWING POOL	Total/NA	Drinking Water	625 PAH Physis LL (EAL) + TICs	O-38150_P
100788-B1	Method Blank	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-38150_P
100788-BS1	Lab Control Sample	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-38150_P
100788-BS2	Lab Control Sample Dup	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-38150_P

Analysis Batch: 22DSJ049W

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-23773-1	HALAWA SHAFT VIEWING POOL	Total/NA	Drinking Water	8015 Diesel LL (EAL) and Motor Oil	
22DSJ049WB	Method Blank	Total/NA	WATER	8015 Diesel LL (EAL) and Motor Oil	
22DSJ049WL	Lab Control Sample	Total/NA	WATER	8015 Diesel LL (EAL) and Motor Oil	

Analysis Batch: 22VGH7J09

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-23773-1	HALAWA SHAFT VIEWING POOL	Total/NA	Drinking Water	8015 Gas (Purgeable) LL (EAL)	
380-23773-2	TB HALAWA SHAFT VIEWING POOL	Total/NA	Drinking Water	8015 Gas (Purgeable) LL (EAL)	
22VGH7J09B	Method Blank	Total/NA	WATER	8015 Gas (Purgeable) LL (EAL)	

Eurofins Eaton Monrovia

QC Association Summary

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

Job ID: 380-23773-1

Subcontract (Continued)

Analysis Batch: 22VGH7J09 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
22VGH7J09L	Lab Control Sample	Total/NA	WATER	8015 Gas (Purgeable) LL (EAL)	

Prep Batch: O-38150_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-23773-1	HALAWA SHAFT VIEWING POOL	Total/NA	Drinking Water	EPA_625	
100788-B1	Method Blank	Total/NA	BlankMatrix	EPA_625	
100788-BS1	Lab Control Sample	Total/NA	BlankMatrix	EPA_625	
100788-BS2	Lab Control Sample Dup	Total/NA	BlankMatrix	EPA_625	

Lab Chronicle

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

Job ID: 380-23773-1

Client Sample ID: HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-23773-1

Date Collected: 10/10/22 09:40

Matrix: Drinking Water

Date Received: 10/11/22 09:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	525.2			20548	OTM3	EA MON	10/13/22 06:14
Total/NA	Analysis	525.2		1	20743	Q8LA	EA MON	10/14/22 18:49
Total/NA	Prep	EPA_625		1	O-38150_P			10/13/22 00:00
Total/NA	Analysis	625 PAH Physis LL (EAL) + TICs		1	O-38150	YC		10/16/22 14:21
Total/NA	Analysis	8015 Diesel LL (EAL) and Motor Oil		1	22DSJ049W	SDees		10/24/22 23:00
Total/NA	Analysis	8015 Gas (Purgeable) LL (EAL)		1	22VGH7J09	SCerva		10/18/22 05:35

Client Sample ID: TB HALAWA SHAFT VIEWING POOL

Lab Sample ID: 380-23773-2

Date Collected: 10/10/22 09:40

Matrix: Drinking Water

Date Received: 10/11/22 09:45

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	22VGH7J09	SCerva		10/18/22 06:10

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: 380-23773-1

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

Accreditation/Certification Summary

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

Job ID: 380-23773-1

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
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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	Terbutylazine
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: 380-23773-1

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: 380-23773-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	PWSID Number
380-23773-1	HALAWA SHAFT VIEWING POOL	Drinking Water	10/10/22 09:40	10/11/22 09:45	HI0000331
380-23773-2	TB HALAWA SHAFT VIEWING POOL	Drinking Water	10/10/22 09:40	10/11/22 09:45	

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Date: 11-09-2022
EMAX Batch No.: 22J164

Attn: Jackie Contreras

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

Subject: Laboratory Report
Project: 380-23773

Enclosed is the Laboratory report for samples received on 10/12/22.
The data reported relate only to samples listed below :

Sample ID	Control #	Col Date	Matrix	Analysis
380-23773-1	J164-01	10/10/22	WATER	TPH GASOLINE TPH DIESEL & MOTOR OIL
380-23773-2	J164-02	10/10/22	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
.....
Caspar J. Pang
Laboratory Director

This report is confidential and intended solely for the use of the individual or entity to whom it is addressed. This report shall not be reproduced except in full or without the written approval of EMAX.

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



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Monrovia, CA (Suite 100)
750 Royal Oaks Drive Suite 100
Monrovia, CA 91016
Phone: 626-396-1100



Chain of Custody Record
eurofins
Environment Testing
America

Client Information (Sub Contract Lab)
 Client Contact: Shipping/Receiving
 Company: EMAX Laboratories Inc
 Address: 3051 Fujita Street, Torrance, CA 90505
 Phone: 626-396-1100
 Sample #: Arada, Rachelle
 Lab P/N: Rachelle.Arada@eurofins.com
 State of Origin: Hawaii
 Carrier Tracking No(s): 380-2373-1
 Page: Page 1 of 1
 Job #: 380-2373-1

Analysis Requested
 Due Date Requested: 10/25/2022
 TAT Requested (days):
 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 Diesel LL (EAL) and Motor Oil)/ 8015 Diesel LL (EAL) and Motor Oil
 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 - EDTA
 M - Hexane
 N - None
 O - AsH2O2
 P - Na2O4S
 Q - Na2S2O3
 R - Na2S2O5
 S - H2SO4
 T - TSP Dodecylhydrate
 U - Acetone
 V - MCAA
 W - PH 4.5
 X - Trizma
 Y - EDTA
 Z - other (Specify)
 Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (Water, Seawater, Overstabil, RT-Tissue, A=Air)	Preservation Code	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Total Number of containers	Special Instructions/Note
1 HALAWA SHAFT VIEWING POOL (380-2373-1)	10/10/22	09:40		Water		X	X	6	See Attached Instructions
2 TB HALAWA SHAFT VIEWING POOL (380-2373-2)	10/10/22	09:40		Water		X	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 our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/matrix being analyzed, the samples must be shipped back to the Eurofins Eaton Analytical, LLC laboratory or other instructions will be 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
 Unconfirmed
 Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2
 Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months

Empty Kit Relinquished by: Date: _____ Time: _____ Method of Shipment: _____
 Relinquished by: _____ Date/Time: 10-12-22/1738 ea Company: ea
 Relinquished by: _____ Date/Time: _____ Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____
 Custody Seals Intact: Yes No Custody Seal No.: _____
 Cooler Temperature(s) °C and Other Remarks: 0.9 0.12

REPORT ID: 22J164

Ver: 06/08/2021
Page 2 of 23



REFERENCE: EMAX-SM02 Rev. 12
SAMPLE RECEIPT FORM 1

ECN 22114	Recipient Cecilia Chavez	Date 10/12/22	Time 1735
Type of Delivery <input type="checkbox"/> Fedex <input type="checkbox"/> UPS <input type="checkbox"/> GSO <input type="checkbox"/> Others <input checked="" type="checkbox"/> EMAX Courier <input checked="" type="checkbox"/> Client Delivery		Airbill / Tracking Number	

COC INSPECTION

Client Name Client PM/FC Tel # / Fax # _____
 Address Safety Issues (if any) _____
 Note: _____

Sampler Name Counter Signature From Superfund Site
 Sampling Date/Time Analysis Required Rad screening required
 Sample ID Preservative (if any) _____
 Matrix TAT

PACKAGING INSPECTION

Cooler Box
 Custody Seal Intact
 Bubble Pack Styrofoam
 Cooler 1.0 °C Cooler 2.2 °C
 Cooler 6 °C Cooler 7 °C
 Cooler 8 °C Cooler 9 °C
 Cooler 10 °C

Thermometer: _____
 Temperatures (Cool, 56 °C but not frozen): _____
 Packaging: _____
 Condition: _____
 Container: _____
 Note: _____

LabSampleID	LabSampleContainerID	Code	Client Sample Label ID / Information	Corrective Action
2	48	D22	9/23/22 + 10/10/22	121

pH holding time requirement for water samples is 15 mins. Water samples for pH analysis are received beyond 15 minutes from sampling time.

NOTES/OBSERVATIONS:

SAMPLE MATRIX IS DRINKING WATER? YES NO

LEGEND:

Code Description-Sample Management

D1 Analysis is not indicated in _____

D2 Sample ID 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

REVIEWERS: JHOWIN ZHANG

Sample Labeling Date 10/12/22

REPORT ID: 22J164

EMAX Laboratories, Inc. 3051 Fujita St., Torrance, CA 90505

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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

380-23773

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

SDG#: 22J164



CASE NARRATIVE

Client : EUROFINS EATON ANALYTICAL

Project: 380-23773

SDG : 22J164

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

A total of two(2) water samples were received on 10/12/22 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. VGH7J09B - 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. VGH7J09L/VGH7J09C 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 J162-01M/J162-01S. 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.

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SAMPLE RESULTS

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

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=====
Client      : EUROFINS EATON ANALYTICAL   Date Collected: 10/10/22 09:40
Project     : 380-23773                   Date Received: 10/12/22
Batch No.   : 22J164                       Date Extracted: 10/18/22 05:35
Sample ID   : 380-23773-1                 Date Analyzed: 10/18/22 05:35
Lab Samp ID : J164-01                       Dilution Factor: 1
Lab File ID : AJ16073A                       Matrix: WATER
Ext Btch ID : 22VGH7J09                     % Moisture: NA
Calib. Ref. : AJ16070A                       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	0.0363	0.0400	91	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

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QC SUMMARIES

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL
PROJECT : 380-23773
BATCH NO. : 22J164
METHOD : 5030B/8015B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR:	1	1	1
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: VGH7J09B	VGH7J09L	VGH7J09C
LAB FILE ID	: AJ16059A	AJ16060A	AJ16061A
DATE PREPARED	: 10/17/22 21:22	10/17/22 21:57	10/17/22 22:32
DATE ANALYZED	: 10/17/22 21:22	10/17/22 21:57	10/17/22 22:32
PREP BATCH	: 22VGH7J09	22VGH7J09	22VGH7J09
CALIBRATION REF:	AJ16058A	AJ16058A	AJ16058A

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	0.426	85	0.500	0.453	91	6	60-130	30

SURROGATE PARAMETER	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	QCLimit (%)
Bromofluorobenzene	0.0400	0.0410	103	0.0400	0.0419	105	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 : 380-23784
BATCH NO. : 22J162
METHOD : 5030B/8015B

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=====
MATRIX      : WATER                               % MOISTURE:NA
DILUTION FACTOR: 1                               1
SAMPLE ID   : 380-23784-1                       380-23784-1MS
LAB SAMPLE ID : J162-01                         J162-01M
LAB FILE ID  : AJ16062A                         AJ16063A
DATE PREPARED : 10/17/22 23:07                 10/17/22 23:43
DATE ANALYZED : 10/17/22 23:07                 10/18/22 00:18
PREP BATCH   : 22VGH7J09                       22VGH7J09
CALIBRATION REF: AJ16058A                      AJ16058A
    
```

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	0.464	93	0.500	0.486	97	5	50-130	30

SURROGATE PARAMETER	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	QCLimit (%)
Bromofluorobenzene	0.0400	0.0457	114	0.0400	0.0477	119	60-140

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

LABORATORY REPORT FOR

EUROFINS EATON ANALYTICAL

380-23773

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

SDG#: 22J164



CASE NARRATIVE

Client : EUROFINS EATON ANALYTICAL

Project: 380-23773

SDG : 22J164

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

One(1) water sample was received on 10/12/22 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. DSJ049WB - 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) LCS was analyzed. Percent recovery for Diesel was within LCS QC limits in DSJ049WL. 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. Diesel was within MS QC limits in 22J162-01M/22J162-01S. Refer to Matrix QC summary form for details.

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 : 380-23773

SDG NO. : 22J164
Instrument ID : D5

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
380-23773-1	DSJ049WB	1	NA	10/24/2219:18	10/22/2213:30	LJ24029A	LJ24023A	22DSJ049W	Method Blank
	DSJ049WL	1	NA	10/24/2219:36	10/22/2213:30	LJ24030A	LJ24023A	22DSJ049W	Lab Control Sample (LCS)
	J164-01	1	NA	10/24/2223:00	10/22/2213:30	LJ24041A	LJ24023A	22DSJ049W	Field Sample

FN - Filename
% Moist - Percent Moisture



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SAMPLE RESULTS

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QC SUMMARIES

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL
PROJECT : 380-23773
BATCH NO. : 22J164
METHOD : 3520C/8015B

=====

MATRIX : WATER % MOISTURE:NA
DILUTION FACTOR: 1 1
SAMPLE ID : MBLK1W LCS1W
LAB SAMPLE ID : DSJ049WB DSJ049WL
LAB FILE ID : LJ24029A LJ24030A
DATE PREPARED : 10/22/22 13:30 10/22/22 13:30
DATE ANALYZED : 10/24/22 19:18 10/24/22 19:36
PREP BATCH : 22DSJ049W 22DSJ049W
CALIBRATION REF: LJ24023A LJ24023A

ACCESSION:

PARAMETERS	MBResult (mg/L)	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	QCLimit (%)
Diesel	ND	2.50	2.70	108	50-130

SURROGATE PARAMETERS	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	QCLimit (%)
Bromobenzene	0.500	0.517	103	60-130
Hexacosane	0.125	0.124	99	60-130

=====

MB: Method Blank sample LCS: Lab Control Sample

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL
PROJECT : 380-23784
BATCH NO. : 22J162
METHOD : 3520C/8015B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR:	1	1	1
SAMPLE ID	: 380-23784-1	380-23784-1MS	380-23784-1MSD
LAB SAMPLE ID	: 22J162-01	22J162-01M	22J162-01S
LAB FILE ID	: LJ24033A	LJ24034A	LJ24035A
DATE PREPARED	: 10/22/22 13:30	10/22/22 13:30	10/22/22 13:30
DATE ANALYZED	: 10/24/22 20:32	10/24/22 20:50	10/24/22 21:09
PREP BATCH	: 22DSJ049W	22DSJ049W	22DSJ049W
CALIBRATION REF:	LJ24023A	LJ24023A	LJ24023A

ACCESSION:

PARAMETERS	PSResult (mg/L)	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Diesel	ND	2.38	2.64	111	2.40	2.69	112	2	50-130	30

SURROGATE PARAMETERS	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	QCLimit (%)
Bromobenzene	0.475	0.435	92	0.480	0.513	107	60-130
Hexacosane	0.119	0.122	103	0.120	0.129	108	60-130

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

October 20, 2022

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

Project Name: RED-HILL Project # 38001111 Job # 380-23773-1
 Physis Project ID: 1407003-313

Dear Debbie,

Enclosed are the analytical results for the sample submitted to PHYSIS Environmental Laboratories, Inc. (PHYSIS) on 10/12/2022. 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: 1407003-313

RED-HILL Project # 38001111 Job # 380-23773-1

Total Samples: 1

PHYSIS ID	Sample ID	Description	Date	Time	Matrix	Sample Type
100789	HALAWA SHAFT VIEWING POOL	380-23773-1	10/10/202	9:40	Samplewater	Not Specified

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ABBREVIATIONS and ACRONYMS

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

QUALITY ASSURANCE SUMMARY

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

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

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

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

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

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

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

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

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

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

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

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

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

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

PHYSIS QUALIFIER CODES

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

CASE NARRATIVE

QUALIFIER NOTES

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

ND

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

ANALYTICAL REPORT

TERRA AURA ENVIRONMENTAL LABORATORIES, INC.

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Base/Neutral Extractable Compounds

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Sample ID: 100789-R1	HALAWA SHAFT VIEWING POOL 3		Matrix: Samplewater				Sampled:	10-Oct-22 9:40	Received:	12-Oct-22	
Disalicylidenepropanediamine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-38150	13-Oct-22	16-Oct-22



Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Sample ID: 100789-R1	HALAWA SHAFT VIEWING POOL 3	Matrix: Samplewater					Sampled:	10-Oct-22	9:40	Received:	12-Oct-22
(d10-Acenaphthene)	EPA 625.1	% Recovery	92	1			Total		0-38150	13-Oct-22	16-Oct-22
(d10-Phenanthrene)	EPA 625.1	% Recovery	111	1			Total		0-38150	13-Oct-22	16-Oct-22
(d12-Chrysene)	EPA 625.1	% Recovery	83	1			Total		0-38150	13-Oct-22	16-Oct-22
(d12-Perylene)	EPA 625.1	% Recovery	105	1			Total		0-38150	13-Oct-22	16-Oct-22
(d8-Naphthalene)	EPA 625.1	% Recovery	85	1			Total		0-38150	13-Oct-22	16-Oct-22
1-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		0-38150	13-Oct-22	16-Oct-22
1-Methylphenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		0-38150	13-Oct-22	16-Oct-22
2,3,5-Trimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		0-38150	13-Oct-22	16-Oct-22
2,6-Dimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		0-38150	13-Oct-22	16-Oct-22
2-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		0-38150	13-Oct-22	16-Oct-22
Acenaphthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		0-38150	13-Oct-22	16-Oct-22
Acenaphthylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		0-38150	13-Oct-22	16-Oct-22
Anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		0-38150	13-Oct-22	16-Oct-22
Benz[a]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		0-38150	13-Oct-22	16-Oct-22
Benzo[a]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		0-38150	13-Oct-22	16-Oct-22
Benzo[b]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		0-38150	13-Oct-22	16-Oct-22
Benzo[e]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		0-38150	13-Oct-22	16-Oct-22
Benzo[g,h,i]perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		0-38150	13-Oct-22	16-Oct-22
Benzo[k]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		0-38150	13-Oct-22	16-Oct-22
Biphenyl	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		0-38150	13-Oct-22	16-Oct-22
Chrysene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		0-38150	13-Oct-22	16-Oct-22
D benz[a,h]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		0-38150	13-Oct-22	16-Oct-22
D benzo[a,l]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		0-38150	13-Oct-22	16-Oct-22
D benzothiophene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		0-38150	13-Oct-22	16-Oct-22

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-38150	13-Oct-22	16-Oct-22
Fluorene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38150	13-Oct-22	16-Oct-22
Indeno[1,2,3-cd]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38150	13-Oct-22	16-Oct-22
Naphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38150	13-Oct-22	16-Oct-22
Perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38150	13-Oct-22	16-Oct-22
Phenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38150	13-Oct-22	16-Oct-22
Pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38150	13-Oct-22	16-Oct-22

QUALITY CONTROL REPORT

TERRA ENVIRONMENTAL LABORATORIES, INC. AURA

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Base/Neutral Extractable Compounds

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE SOURCE		ACCURACY		PRECISION		QA CODEc
							LEVEL	RESULT	%	LIMITS	%	LIMITS	
Sample ID: 100788-B1		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:		Received:			
		Method: EPA 625.1			Batch ID: O-38150			Prepared: 10-Oct-22		Analyzed: 16-Oct-22			
Disalicylideneprapanediamin	Total	ND	1	0.05	0.1	µg/L							
Sample ID: 100788-BS1		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:		Received:			
		Method: EPA 625.1			Batch ID: O-38150			Prepared: 10-Oct-22		Analyzed: 16-Oct-22			
Disalicylideneprapanediamin	Total	30.1	1	0.05	0.1	µg/L	50	0	60	50 - 150%	PASS		
Sample ID: 100788-BS2		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:		Received:			
		Method: EPA 625.1			Batch ID: O-38150			Prepared: 10-Oct-22		Analyzed: 16-Oct-22			
Disalicylideneprapanediamin	Total	31	1	0.05	0.1	µg/L	50	0	62	50 - 150%	PASS	3	30 PASS

Polynuclear Aromatic Hydrocarbons

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY	PRECISION	QA CODEc
							LEVEL	RESULT	% LIMITS	% LIMITS	
Sample ID: 100788-B1		QAQC Procedural Blank			Matrix: BlankMatrix		Sampled:		Received:		
	Method: EPA 625.1					Batch ID: O-38150	Prepared: 10-Oct-22	Analyzed: 16-Oct-22			
(d10-Acenaphthene)	Total	111	1			% Recovery	100	111	27 - 133%	PASS	
(d10-Phenanthrene)	Total	111	1			% Recovery	100	111	43 - 129%	PASS	
(d12-Chrysene)	Total	95	1			% Recovery	100	95	52 - 144%	PASS	
(d12-Perylene)	Total	99	1			% Recovery	100	99	36 - 161%	PASS	
(d8-Naphthalene)	Total	118	1			% Recovery	100	118	25 - 125%	PASS	
1-Methylnaphthalene	Total	ND	1	0.001	0.005	µg/L					
1-Methylphenanthrene	Total	ND	1	0.001	0.005	µg/L					
2,3,5-Trimethylnaphthalene	Total	ND	1	0.001	0.005	µg/L					
2,6-Dimethylnaphthalene	Total	ND	1	0.001	0.005	µg/L					
2-Methylnaphthalene	Total	ND	1	0.001	0.005	µg/L					
Acenaphthene	Total	ND	1	0.001	0.005	µg/L					
Acenaphthylene	Total	ND	1	0.001	0.005	µg/L					
Anthracene	Total	ND	1	0.001	0.005	µg/L					
Benz[a]anthracene	Total	ND	1	0.001	0.005	µg/L					
Benzo[a]pyrene	Total	ND	1	0.001	0.005	µg/L					
Benzo[b]fluoranthene	Total	ND	1	0.001	0.005	µg/L					
Benzo[e]pyrene	Total	ND	1	0.001	0.005	µg/L					
Benzo[g,h,i]perylene	Total	ND	1	0.001	0.005	µg/L					
Benzo[k]fluoranthene	Total	ND	1	0.001	0.005	µg/L					
Biphenyl	Total	ND	1	0.001	0.005	µg/L					
Chrysene	Total	ND	1	0.001	0.005	µg/L					
Dibenz[a,h]anthracene	Total	ND	1	0.001	0.005	µg/L					
Dibenzo[a,l]pyrene	Total	ND	1	0.001	0.005	µg/L					
Dibenzothiophene	Total	ND	1	0.001	0.005	µg/L					

Polynuclear Aromatic Hydrocarbons

QUALITY CONTROL REPORT

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



Polynuclear Aromatic Hydrocarbons

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY	PRECISION	QA CODEc	
							LEVEL	RESULT	%	LIMITS	%	LIMITS
Sample ID: 100788-BS1		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:		Received:		
Method: EPA 625.1		Batch ID: O-38150			Prepared: 10-Oct-22		Analyzed: 16-Oct-22					
(d10-Acenaphthene)	Total	110	1			% Recovery	100	0	110	27 - 133%	PASS	
(d10-Phenanthrene)	Total	110	1			% Recovery	100	0	110	43 - 129%	PASS	
(d12-Chrysene)	Total	97	1			% Recovery	100	0	97	52 - 144%	PASS	
(d12-Perylene)	Total	107	1			% Recovery	100	0	107	36 - 161%	PASS	
(d8-Naphthalene)	Total	115	1			% Recovery	100	0	115	25 - 125%	PASS	
1-Methylnaphthalene	Total	0.574	1	0.001	0.005	µg/L	0.5	0	115	31 - 128%	PASS	
1-Methylphenanthrene	Total	0.583	1	0.001	0.005	µg/L	0.5	0	117	66 - 127%	PASS	
2,3,5-Trimethylnaphthalene	Total	0.541	1	0.001	0.005	µg/L	0.5	0	108	55 - 122%	PASS	
2,6-Dimethylnaphthalene	Total	0.513	1	0.001	0.005	µg/L	0.5	0	103	48 - 120%	PASS	
2-Methylnaphthalene	Total	0.616	1	0.001	0.005	µg/L	0.5	0	123	47 - 130%	PASS	
Acenaphthene	Total	0.595	1	0.001	0.005	µg/L	0.5	0	119	53 - 131%	PASS	
Acenaphthylene	Total	0.518	1	0.001	0.005	µg/L	0.5	0	104	43 - 140%	PASS	
Anthracene	Total	0.503	1	0.001	0.005	µg/L	0.5	0	101	58 - 135%	PASS	
Benz[a]anthracene	Total	0.419	1	0.001	0.005	µg/L	0.5	0	84	55 - 145%	PASS	
Benzo[a]pyrene	Total	0.483	1	0.001	0.005	µg/L	0.5	0	97	51 - 143%	PASS	
Benzo[b]fluoranthene	Total	0.489	1	0.001	0.005	µg/L	0.5	0	98	46 - 165%	PASS	
Benzo[e]pyrene	Total	0.482	1	0.001	0.005	µg/L	0.5	0	96	42 - 152%	PASS	
Benzo[g,h,i]perylene	Total	0.506	1	0.001	0.005	µg/L	0.5	0	101	63 - 133%	PASS	
Benzo[k]fluoranthene	Total	0.455	1	0.001	0.005	µg/L	0.5	0	91	56 - 145%	PASS	
Biphenyl	Total	0.472	1	0.001	0.005	µg/L	0.5	0	94	56 - 119%	PASS	
Chrysene	Total	0.445	1	0.001	0.005	µg/L	0.5	0	89	56 - 141%	PASS	
Dibenz[a,h]anthracene	Total	0.499	1	0.001	0.005	µg/L	0.5	0	100	55 - 150%	PASS	
Dibenzo[a,l]pyrene	Total	0.275	1	0.001	0.005	µg/L	0.5	0	55	50 - 150%	PASS	
Dibenzothiophene	Total	0.497	1	0.001	0.005	µg/L	0.5	0	99	75 - 113%	PASS	

Polynuclear Aromatic Hydrocarbons

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY		PRECISION		QA CODE _c
							LEVEL	RESULT	%	LIMITS	%	LIMITS	
Fluoranthene	Total	0.587	1	0.001	0.005	µg/L	0.5	0	117	60 - 146%	PASS		
Fluorene	Total	0.654	1	0.001	0.005	µg/L	0.5	0	131	58 - 131%	PASS		
Indeno[1,2,3-cd]pyrene	Total	0.539	1	0.001	0.005	µg/L	0.5	0	108	50 - 151%	PASS		
Naphthalene	Total	0.475	1	0.001	0.005	µg/L	0.5	0	95	41 - 126%	PASS		
Perylene	Total	0.476	1	0.001	0.005	µg/L	0.5	0	95	48 - 141%	PASS		
Phenanthrene	Total	0.489	1	0.001	0.005	µg/L	0.5	0	98	67 - 127%	PASS		
Pyrene	Total	0.564	1	0.001	0.005	µg/L	0.5	0	113	54 - 156%	PASS		

Polynuclear Aromatic Hydrocarbons

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY		PRECISION		QA CODEc		
							LEVEL	RESULT	%	LIMITS	%	LIMITS			
Sample ID: 100788-BS2		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:			Received:				
		Method: EPA 625.1			Batch ID: O-38150			Prepared: 10-Oct-22			Analyzed: 16-Oct-22				
(d10-Acenaphthene)	Total	111	1				% Recovery	100	0	111	27 - 133%	PASS	1	30	PASS
(d10-Phenanthrene)	Total	109	1				% Recovery	100	0	109	43 - 129%	PASS	1	30	PASS
(d12-Chrysene)	Total	82	1				% Recovery	100	0	82	52 - 144%	PASS	17	30	PASS
(d12-Perylene)	Total	105	1				% Recovery	100	0	105	36 - 161%	PASS	2	30	PASS
(d8-Naphthalene)	Total	89	1				% Recovery	100	0	89	25 - 125%	PASS	25	30	PASS
1-Methylnaphthalene	Total	0.584	1	0.001	0.005	µg/L		0.5	0	117	31 - 128%	PASS	2	30	PASS
1-Methylphenanthrene	Total	0.498	1	0.001	0.005	µg/L		0.5	0	100	66 - 127%	PASS	16	30	PASS
2,3,5-Trimethylnaphthalene	Total	0.578	1	0.001	0.005	µg/L		0.5	0	116	55 - 122%	PASS	7	30	PASS
2,6-Dimethylnaphthalene	Total	0.493	1	0.001	0.005	µg/L		0.5	0	99	48 - 120%	PASS	4	30	PASS
2-Methylnaphthalene	Total	0.543	1	0.001	0.005	µg/L		0.5	0	109	47 - 130%	PASS	12	30	PASS
Acenaphthene	Total	0.539	1	0.001	0.005	µg/L		0.5	0	108	53 - 131%	PASS	10	30	PASS
Acenaphthylene	Total	0.496	1	0.001	0.005	µg/L		0.5	0	99	43 - 140%	PASS	5	30	PASS
Anthracene	Total	0.52	1	0.001	0.005	µg/L		0.5	0	104	58 - 135%	PASS	3	30	PASS
Benz[a]anthracene	Total	0.391	1	0.001	0.005	µg/L		0.5	0	78	55 - 145%	PASS	7	30	PASS
Benzo[a]pyrene	Total	0.506	1	0.001	0.005	µg/L		0.5	0	101	51 - 143%	PASS	4	30	PASS
Benzo[b]fluoranthene	Total	0.52	1	0.001	0.005	µg/L		0.5	0	104	46 - 165%	PASS	6	30	PASS
Benzo[e]pyrene	Total	0.519	1	0.001	0.005	µg/L		0.5	0	104	42 - 152%	PASS	8	30	PASS
Benzo[g,h,i]perylene	Total	0.533	1	0.001	0.005	µg/L		0.5	0	107	63 - 133%	PASS	6	30	PASS
Benzo[k]fluoranthene	Total	0.486	1	0.001	0.005	µg/L		0.5	0	97	56 - 145%	PASS	6	30	PASS
Biphenyl	Total	0.514	1	0.001	0.005	µg/L		0.5	0	103	56 - 119%	PASS	9	30	PASS
Chrysene	Total	0.399	1	0.001	0.005	µg/L		0.5	0	80	56 - 141%	PASS	11	30	PASS
Dibenz[a,h]anthracene	Total	0.527	1	0.001	0.005	µg/L		0.5	0	105	55 - 150%	PASS	5	30	PASS
Dibenzo[a,l]pyrene	Total	0.269	1	0.001	0.005	µg/L		0.5	0	54	50 - 150%	PASS	2	30	PASS
Dibenzothiophene	Total	0.522	1	0.001	0.005	µg/L		0.5	0	104	75 - 113%	PASS	5	30	PASS

Polynuclear Aromatic Hydrocarbons

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY		PRECISION		QA CODE _c	
							LEVEL	RESULT	%	LIMITS	%	LIMITS		
Fluoranthene	Total	0.501	1	0.001	0.005	µg/L	0.5	0	100	60 - 146%	PASS	16	30	PASS
Fluorene	Total	0.615	1	0.001	0.005	µg/L	0.5	0	123	58 - 131%	PASS	6	30	PASS
Indeno[1,2,3-cd]pyrene	Total	0.567	1	0.001	0.005	µg/L	0.5	0	113	50 - 151%	PASS	5	30	PASS
Naphthalene	Total	0.394	1	0.001	0.005	µg/L	0.5	0	79	41 - 126%	PASS	18	30	PASS
Perylene	Total	0.508	1	0.001	0.005	µg/L	0.5	0	102	48 - 141%	PASS	7	30	PASS
Phenanthrene	Total	0.517	1	0.001	0.005	µg/L	0.5	0	103	67 - 127%	PASS	5	30	PASS
Pyrene	Total	0.499	1	0.001	0.005	µg/L	0.5	0	100	54 - 156%	PASS	12	30	PASS

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PHYSIS

TENTATIVELY IDENTIFIED COMPOUNDS

ENVIRONMENTAL LABORATORIES, INC.

Innovative Solutions for Nature

Sample ID: 100789

RT	Area Pct	Concentration (ng/L)	Library/ID	Cas Number	Match Qual
32.3479	4.8125	1111	Anthracene-D10-	1517-22-2	95
29.3452	1.3357	308	Benzoic acid, 2-ethylhexyl ester	5444-75-7	98
17.5021	0.6038	139	Propanoic acid, 2-methyl-, 3-hydroxy-2,2,4-trimethylpentyl ester	77-68-9	98
16.9580	0.4832	112	2,2,4-Trimethyl-1,3-pentanediol diisobutyrate	6846-50-0	90

Concentration estimated using the response for Anthracene-d10

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Sample ID: Lab Blank Batch O-38150

RT	Area Pct	Concentration (ng/L)	Library/ID	Cas Number	Match Qual
67.1325	7.9371	1111	Anthracene-D10-	1520-96-3	93
29.3482	0.9057	127	Benzoic acid, 2-ethylhexyl ester	5444-75-7	98

Concentration estimated using the response for Anthracene-d10

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PERFORMANCE CHAIN OF CUSTODY

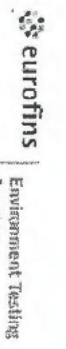
TERRA ENVIRONMENTAL LABORATORIES, INC. AURA

Innovative Solutions for Nature

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750 Royal Oaks Drive Suite 100
Monrovia, CA 91016
Phone: 626-396-1100

Chain of Custody Record



Client Information (Sub Contract Lab)		Sampler:	Lab PM:	Carrier Tracking No(s):	COC No:
Client Contact:		Phone:	Arada, Rachelle		380-23665-1
Company:		E-Mail: Rachelle.Arada@eurofins.com		State of Origin:	Page: 1 of 1
Physis Environmental Laboratories		Accreditations Required (See note):		Hawaii	Page 1 of 1
Address:		State - Hawaii		Job #:	380-23773-1
1904 Wright Circle,		Date Date Requested:		Preservation Codes:	
City: Anaheim		10/25/2022		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Ascorbic Acid H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA M - Hexane N - None O - AsH2O2 P - Na2CO3 Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Tizma Z - other (specify)	
State, Zip: CA, 92806		TAT Requested (days):		Other:	
Phone:		PO #:		Special Instructions/Note:	
Email:		W/O #:		See Attached Instructions	
Project Name: RED-HILL		Project #: 38001111		Total Number of containers	
Site: Honolulu BWS Sites		SSOW#:		2	
Sample Identification - Client ID (Lab ID)		Sample Date		Sample Time	
HALAWA SHAFT VIEWING POOL (380-23773-1)		10/10/22		09:40	
		Hawaiian		Water	
				Matrix (W-water, Swallow, Dewater, BT-tissue, Ash)	
				Field Filtered Sample (Yes or No)	
				Perform MS/MSB (Yes or No)	
				SUB (625 PAH Physis LL (EAL) + TICs)/ 625 PAH Physis LL (EAL) + TICs	
				Return to Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For <input type="checkbox"/> Months	
				Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	
				Special Instructions/IOC Requirements:	
				Unconfirmed	
				Deliverable Requested: I, II, III, IV, Other (specify)	
				Primary Deliverable Rank: 2	
				Empty Kit Relinquished by:	
				Date/Time: 10/12/22 1456	
				Company: <i>THASIS</i>	
				Relinquished by: <i>Xan</i>	
				Date/Time: 10/12/22 1456	
				Company: <i>THASIS</i>	
				Relinquished by:	
				Date/Time:	
				Company:	
				Custody Seals Intact: <input type="checkbox"/> Custody Seal No.: <input type="checkbox"/>	
				Cooler Temperature(s) °C and Other Remarks:	

Project Iteration ID: 1407003-313
 Client Name: Eurofins Eaton Analytical
 Project Name: RED-HILL Project # 38001111 Job # 380-23773-1
 COC Page Number: 2 of 2
 Bottle Label Color: NA

Sample Receipt Summary

Receiving Info

1. Initials Received By: AD
2. Date Received: 10/12/22
3. Time Received: 1456
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)
 - 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): 3.4 Used I/R Thermometer # 1-2

Inspection Info

1. Initials Inspected By: AD

Sample Integrity Upon Receipt:

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

Notes:

Monrovia, CA (Suite 100)

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

Chain of Custody Record



Environment Testing
 America

Client Information		Sampler: <i>Dr. Ron Fenstemacher</i>		Lab PM: Frank, Debbie L		Carrier Tracking No(s):		COC No: 380-9755-2757.2									
Client Contact: Dr. Ron Fenstemacher		Phone: <i>808-248-5840</i>		E-Mail: Debbie.Frank@et.eurofinsus.com		State of Origin:		Page: Page 2 of 3									
Company: City & County of Honolulu		PWSID:		Analysis Requested						Job #:							
Address: 630 South Beretania Street Chemistry Lab		Due Date Requested:		Field Filtered Sample (Yes or No) <input type="checkbox"/> Perform MS/MSD (Yes or No) <input type="checkbox"/> SUBCONTRACT - 625 PAH Physis LL (EAL) + TICs <input type="checkbox"/> SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL) <input type="checkbox"/> SUBCONTRACT - 8015 Diesel LL (EAL) and Motor Oil <input type="checkbox"/> 525.2_PEC - (MOD) 525plus Plus TICs <input type="checkbox"/> SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL) <input type="checkbox"/>						TAT Requested (days):		Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Y - Trizma Z - other (specify)		Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No		Other:	
City: Honolulu		PO #:								Project #:				Special Instructions/Note:			
State, Zip: HI, 96843		WO #:								SSOW#:							
Phone: 808-748-5091(Tel)																	
Email: RFENSTEMACHER@hbws.org																	
Project Name: RED-HILL/HBWS Sites Event Desc: RUSH Weekly Red Hill																	
Site: Hawaii																	
Sample Identification		Sample Date		Sample Time		Sample Type (C=comp, G=grab)		Matrix (W=water, S=solid, O=waste/soil, BT=Tissue, A=Air)		Total Number of containers							
MOANALUA WELLS (331-223-TP202)																	
AIEA GULCH WELLS PUMP 1 (331-201-TP071)																	
AIEA GULCH WELLS PUMP 2 (331-202-TP072)																	
AIEA WELLS PUMPS1&2(260)331-203-TP400																	
HALAWA SHAFT (331-241-TP401) <i>Vidua Pad</i>		<i>10-10-22</i>		<i>940</i>		<i>G</i>		<i>Water</i>		<i>XXXXXX</i>							
HALAWA WELLS UNITS1&2(331-206-TP065)																	
MOANALUA WELLS (331-223-TP202)																	
AIEA GULCH WELLS PUMP 1 (331-201-TP071)																	
AIEA GULCH WELLS PUMP 2 (331-202-TP072)																	
AIEA WELLS PUMPS1&2(260)331-203-TP400																	
HALAWA SHAFT (331-241-TP401)																	
Possible Hazard Identification						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)											
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> 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: [Redacted]		Date/Time: <i>10-10-22 11:00</i>		Company:		Received by: <i>GREYNER</i>		Date/Time: <i>10/11/2022 09:45</i>		Company: <i>FEA</i>							
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:							
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:		Company:							
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:													



380-23773 COC



ORIGIN ID:HIKA (808) 748-5840
BWS CHEMLAB
HONOLULU BOARD OF WATER SUPPLY
630 S. BERETANIA ST.
CHEMICAL LABORATORY
HONOLULU, HI 96843
UNITED STATES US

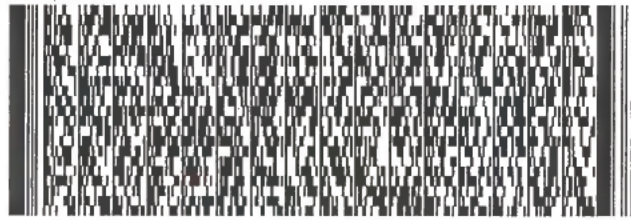
SHIP DATE: 10OCT22
ACTWGT: 25.00 LB
CAD: 100205419/INET4530

BILL RECIPIENT

TO **C CHUCK**
EUROFINS EATON ANALYTICAL, INC
750 ROYAL OAKS DR
SUITE 100
MONROVIA CA 91016

581.J1JAC5FFE2D

(626) 386-1178 REF:
INV: DEPT:
PO:

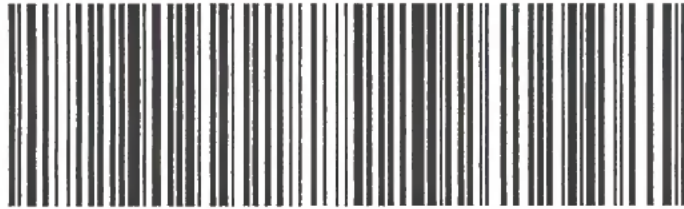


TUE - 11 OCT 10:30A
PRIORITY OVERNIGHT

TRK# 7701 6432 5045
0201

WZ WHPA

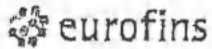
91016
CA-US BUR



After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number. Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of \$100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of \$100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is \$1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.



Eaton Analytical

INTERNAL CHAIN OF CUSTODY RECORD

EEA Folder Number:

SAMPLE TEMP RECEIVED:

Note: If samples are out of temperature range, let the ASMs know. ASMs will determine whether to proceed with analysis or not.

SAMPLES REC'D DAY OF COLLECTION? Yes / No

IR Gun ID = 649A (Observation = 2.6 °C) (Corr. Factor 0.3 °C) (Final = 2.3 °C)

TYPE OF ICE: Real Synthetic No Ice CONDITION OF ICE: Frozen Partially Frozen Thawed N/A

METHOD OF SHIPMENT: Pick-Up / Walk-In FedEx UPS / DHL / Area Fast / Top Line / Other: _____

Compliance Acceptance Criteria:

7701 6432 5045

- 1) Chemistry: >0, ≤6°C, not frozen (NELAP) (If received after 24 hrs of sample collection)
- 2) Microbiology, Distribution: < 10°C, not frozen (can be ≥10°C if received on ice the same day as sample collection, within 8 hours)
- 3) Microbiology, Surface Water: < 10°C (If received after 2 hours of sample collection)

If out of temperature range for both Chemistry and Microbiology samples and temperature does not confirm, then measure the temperature of each quadrant and record each temperature of the quadrants

1 = (Observation = _____ °C) (Corr. Factor _____ °C) (Final = _____ °C)	2 = (Observation = _____ °C) (Corr. Factor _____ °C) (Final = _____ °C)
3 = (Observation = _____ °C) (Corr. Factor _____ °C) (Final = _____ °C)	4 = (Observation = _____ °C) (Corr. Factor _____ °C) (Final = _____ °C)

4 Dioxin (1613 or 2,3,7,8 TCDD): must be between 0-4 °C, not frozen (If received after 24 hrs of sample collection)

5) pH Check. Manufacturer: _____ Lot Number: _____ pH strip type: 0 - 14 or _____ Expiration Date _____ Results: _____

6) Chlorine check. Manufacturer: Sansafe. Lot No.: _____ Expiration Date: _____ Results: _____

7) VOA and Radon Headspace: No Samples with Headspace: Samples with Headspace (see below):

Headspace Documentation (use additional VOC and Radon Internal COFC for additional bottles)

Exempt from headspace concerns: Methods 515.4, HAA(8251,852), 505, SPME, @CH, 532LCMS, 556, 538, Anatoxin, LCMS methods using 40 ml vials, International clients:

Samp ID	Bottle #	Nons/<6 mm	>6mm	Test	Samp ID	Bottle #	Nons/<6 mm	>6mm	Test	Samp ID	Bottle #	Nons/<6 mm	>6mm	Test	Samp ID	Bottle #	Nons/<6 mm	>6mm	Test	

Note Sample IDs which have dissimilar headspace (i.e. potential sampling errors): _____

RECEIVED BY:	SIGNATURE	PRINT NAME	COMPANY/TITLE	DATE	TIME
		G. PEITNER	Eurofins Eaton Analytical	10/11/2022	09:45
SAMPLES CHECKED AGAINST COC BY:	SIGNATURE	PRINT NAME	COMPANY/TITLE	DATE	TIME
			Eurofins Eaton Analytical		

Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-23773-1

Login Number: 23773

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	