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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

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JOB DESCRIPTION

RED-HILL
RUSH Weekly Red Hill

JOB NUMBER

380-24070-1

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.

Compliance Statement

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

Authorization



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Authorized for release by
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Definitions/Glossary

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

Job ID: 380-24070-1

Qualifiers

GC/MS Semi VOA

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

GC/MS Semi VOA TICs

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

Subcontract

Qualifier	Qualifier Description
U	This analyte was not detected.

Glossary

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

Case Narrative

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

Job ID: 380-24070-1

Job ID: 380-24070-1

Laboratory: Eurofins Eaton Monrovia

Narrative

Job Narrative 380-24070-1

Comments

No additional comments.

Receipt

The samples were received on 10/12/2022 10:00 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 was 5.0° C.

Receipt Exceptions

The Chain-of-Custody (COC) was incomplete as received and/or improperly completed. Sample time & date for TB HALAWA WELLS UNITS 1 not indicated on COC; logged in as the same sample time & date as HALAWA WELLS UNITS 1. Also, sampler's name is not on the COC.

GC/MS Semi VOA

Method 525.2: The continuing calibration verification (CCV) associated with batch 380-20905 recovered above the upper control limit for Dibenz(a,h)anthracene and Indeno[1,2,3-cd]pyrene. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: HALAWA WELLS UNITS 1 (380-24070-1).

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

Subcontract non-Sister

See attached subcontract report.

Organic Prep

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

Subcontract Work

Methods 8015 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: 380-24070-1

Client Sample ID: HALAWA WELLS UNITS 1
PWSID Number: HI0000331

Lab Sample ID: 380-24070-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benz[a]anthracene	0.0109		0.005	0.001	µg/L	1		625 PAH Physis LL (EAL) + TICs	Total/NA

Client Sample ID: TB HALAWA WELLS UNITS 1

Lab Sample ID: 380-24070-2

No Detections.

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: 380-24070-1

Client Sample ID: HALAWA WELLS UNITS 1

Lab Sample ID: 380-24070-1

Date Collected: 10/11/22 10:30

Matrix: Drinking Water

Date Received: 10/12/22 10:00

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		10/15/22 15:26	10/17/22 14:49	1
2,4'-DDE	ND		0.098	ug/L		10/15/22 15:26	10/17/22 14:49	1
2,4'-DDT	ND		0.098	ug/L		10/15/22 15:26	10/17/22 14:49	1
2,4-Dinitrotoluene	ND		0.098	ug/L		10/15/22 15:26	10/17/22 14:49	1
2,6-Dinitrotoluene	ND		0.098	ug/L		10/15/22 15:26	10/17/22 14:49	1
4,4'-DDD	ND		0.098	ug/L		10/15/22 15:26	10/17/22 14:49	1
4,4'-DDE	ND		0.098	ug/L		10/15/22 15:26	10/17/22 14:49	1
4,4'-DDT	ND		0.098	ug/L		10/15/22 15:26	10/17/22 14:49	1
Acenaphthene	ND		0.098	ug/L		10/15/22 15:26	10/17/22 14:49	1
Acenaphthylene	ND		0.098	ug/L		10/15/22 15:26	10/17/22 14:49	1
Acetochlor	ND		0.098	ug/L		10/15/22 15:26	10/17/22 14:49	1
Alachlor	ND		0.049	ug/L		10/15/22 15:26	10/17/22 14:49	1
alpha-BHC	ND		0.098	ug/L		10/15/22 15:26	10/17/22 14:49	1
alpha-Chlordane	ND		0.049	ug/L		10/15/22 15:26	10/17/22 14:49	1
Anthracene	ND		0.020	ug/L		10/15/22 15:26	10/17/22 14:49	1
Atrazine	ND		0.049	ug/L		10/15/22 15:26	10/17/22 14:49	1
Benz(a)anthracene	ND		0.049	ug/L		10/15/22 15:26	10/17/22 14:49	1
Benzo[a]pyrene	ND		0.020	ug/L		10/15/22 15:26	10/17/22 14:49	1
Benzo[b]fluoranthene	ND		0.020	ug/L		10/15/22 15:26	10/17/22 14:49	1
Benzo[g,h,i]perylene	ND		0.049	ug/L		10/15/22 15:26	10/17/22 14:49	1
Benzo[k]fluoranthene	ND		0.020	ug/L		10/15/22 15:26	10/17/22 14:49	1
beta-BHC	ND		0.098	ug/L		10/15/22 15:26	10/17/22 14:49	1
Bromacil	ND	^3+	0.098	ug/L		10/15/22 15:26	10/17/22 14:49	1
Butachlor	ND		0.049	ug/L		10/15/22 15:26	10/17/22 14:49	1
Butylbenzylphthalate	ND		0.49	ug/L		10/15/22 15:26	10/17/22 14:49	1
Chlorobenzilate	ND		0.098	ug/L		10/15/22 15:26	10/17/22 14:49	1
Chloroneb	ND		0.098	ug/L		10/15/22 15:26	10/17/22 14:49	1
Chlorothalonil (Draconil, Bravo)	ND		0.098	ug/L		10/15/22 15:26	10/17/22 14:49	1
Chlorpyrifos	ND		0.049	ug/L		10/15/22 15:26	10/17/22 14:49	1
Chrysene	ND		0.020	ug/L		10/15/22 15:26	10/17/22 14:49	1
delta-BHC	ND		0.098	ug/L		10/15/22 15:26	10/17/22 14:49	1
Di(2-ethylhexyl)adipate	ND		0.59	ug/L		10/15/22 15:26	10/17/22 14:49	1
Bis(2-ethylhexyl) phthalate	ND		0.59	ug/L		10/15/22 15:26	10/17/22 14:49	1
Dibenz(a,h)anthracene	ND		0.049	ug/L		10/15/22 15:26	10/17/22 14:49	1
Diclorvos (DDVP)	ND		0.049	ug/L		10/15/22 15:26	10/17/22 14:49	1
Dieldrin	ND		0.20	ug/L		10/15/22 15:26	10/17/22 14:49	1
Diethylphthalate	ND		0.49	ug/L		10/15/22 15:26	10/17/22 14:49	1
Dimethylphthalate	ND		0.49	ug/L		10/15/22 15:26	10/17/22 14:49	1
Di-n-butyl phthalate	ND		0.98	ug/L		10/15/22 15:26	10/17/22 14:49	1
Di-n-octyl phthalate	ND		0.098	ug/L		10/15/22 15:26	10/17/22 14:49	1
Endosulfan I (Alpha)	ND		0.098	ug/L		10/15/22 15:26	10/17/22 14:49	1
Endosulfan II (Beta)	ND		0.098	ug/L		10/15/22 15:26	10/17/22 14:49	1
Endosulfan sulfate	ND		0.098	ug/L		10/15/22 15:26	10/17/22 14:49	1
Endrin	ND	^3+	0.098	ug/L		10/15/22 15:26	10/17/22 14:49	1
Endrin aldehyde	ND		0.098	ug/L		10/15/22 15:26	10/17/22 14:49	1
EPTC	ND		0.098	ug/L		10/15/22 15:26	10/17/22 14:49	1
Fluoranthene	ND		0.098	ug/L		10/15/22 15:26	10/17/22 14:49	1
Fluorene	ND		0.049	ug/L		10/15/22 15:26	10/17/22 14:49	1
gamma-Chlordane	ND		0.049	ug/L		10/15/22 15:26	10/17/22 14:49	1

Eurofins Eaton Monrovia

Client Sample Results

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

Job ID: 380-24070-1

Client Sample ID: HALAWA WELLS UNITS 1

Lab Sample ID: 380-24070-1

Date Collected: 10/11/22 10:30

Matrix: Drinking Water

Date Received: 10/12/22 10:00

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Heptachlor	ND		0.039	ug/L		10/15/22 15:26	10/17/22 14:49	1
Heptachlor epoxide (isomer B)	ND		0.049	ug/L		10/15/22 15:26	10/17/22 14:49	1
Hexachlorobenzene	ND	^3+	0.049	ug/L		10/15/22 15:26	10/17/22 14:49	1
Hexachlorocyclopentadiene	ND		0.049	ug/L		10/15/22 15:26	10/17/22 14:49	1
Indeno[1,2,3-cd]pyrene	ND		0.049	ug/L		10/15/22 15:26	10/17/22 14:49	1
Isophorone	ND		0.49	ug/L		10/15/22 15:26	10/17/22 14:49	1
Lindane	ND		0.039	ug/L		10/15/22 15:26	10/17/22 14:49	1
Malathion	ND		0.098	ug/L		10/15/22 15:26	10/17/22 14:49	1
Methoxychlor	ND		0.098	ug/L		10/15/22 15:26	10/17/22 14:49	1
Metolachlor	ND		0.049	ug/L		10/15/22 15:26	10/17/22 14:49	1
Metribuzin	ND		0.049	ug/L		10/15/22 15:26	10/17/22 14:49	1
Molinate	ND		0.098	ug/L		10/15/22 15:26	10/17/22 14:49	1
Naphthalene	ND		0.29	ug/L		10/15/22 15:26	10/17/22 14:49	1
Parathion	ND		0.098	ug/L		10/15/22 15:26	10/17/22 14:49	1
Pendimethalin (Penoxaline)	ND		0.098	ug/L		10/15/22 15:26	10/17/22 14:49	1
Total Permethrin (mixed isomers)	ND		0.20	ug/L		10/15/22 15:26	10/17/22 14:49	1
Phenanthrene	ND		0.039	ug/L		10/15/22 15:26	10/17/22 14:49	1
Propachlor	ND		0.049	ug/L		10/15/22 15:26	10/17/22 14:49	1
Pyrene	ND		0.049	ug/L		10/15/22 15:26	10/17/22 14:49	1
Simazine	ND		0.049	ug/L		10/15/22 15:26	10/17/22 14:49	1
Terbacil	ND		0.098	ug/L		10/15/22 15:26	10/17/22 14:49	1
Terbutylazine	ND	^3+	0.098	ug/L		10/15/22 15:26	10/17/22 14:49	1
Thiobencarb	ND		0.20	ug/L		10/15/22 15:26	10/17/22 14:49	1
trans-Nonachlor	ND		0.049	ug/L		10/15/22 15:26	10/17/22 14:49	1
Trifluralin	ND		0.098	ug/L		10/15/22 15:26	10/17/22 14:49	1

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Tentatively Identified Compound	None		ug/L				10/15/22 15:26	10/17/22 14:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	94		70 - 130	10/15/22 15:26	10/17/22 14:49	1
Triphenylphosphate	105		70 - 130	10/15/22 15:26	10/17/22 14:49	1
Perylene-d12	97		70 - 130	10/15/22 15:26	10/17/22 14:49	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		10/17/22 00:00	10/24/22 16:57	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 16:57	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 16:57	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 16:57	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 16:57	1
Acenaphthene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 16:57	1
Acenaphthylene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 16:57	1
Anthracene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 16:57	1
Benz[a]anthracene	0.0109		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 16:57	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 16:57	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 16:57	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 16:57	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 16:57	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 16:57	1

Eurofins Eaton Monrovia

Client Sample Results

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

Job ID: 380-24070-1

Client Sample ID: HALAWA WELLS UNITS 1

Lab Sample ID: 380-24070-1

Date Collected: 10/11/22 10:30

Matrix: Drinking Water

Date Received: 10/12/22 10:00

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 16:57	1
Chrysene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 16:57	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 16:57	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 16:57	1
Dibenzothiophene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 16:57	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		10/17/22 00:00	10/24/22 16:57	1
Fluoranthene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 16:57	1
Fluorene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 16:57	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 16:57	1
Naphthalene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 16:57	1
Perylene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 16:57	1
Phenanthrene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 16:57	1
Pyrene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 16:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	108		45 - 118	10/17/22 00:00	10/24/22 16:57	1
(d10-Phenanthrene)	106		56 - 123	10/17/22 00:00	10/24/22 16:57	1
(d12-Chrysene)	84		36 - 142	10/17/22 00:00	10/24/22 16:57	1
(d12-Perylene)	88		36 - 161	10/17/22 00:00	10/24/22 16:57	1
(d8-Naphthalene)	111		20 - 112	10/17/22 00:00	10/24/22 16:57	1

Client Sample ID: TB HALAWA WELLS UNITS 1

Lab Sample ID: 380-24070-2

Date Collected: 10/11/22 10:30

Matrix: Drinking Water

Date Received: 10/12/22 10:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GASOLINE	ND	U	0.020		mg/L			10/18/22 07:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
BROMOFLUOROBENZENE	96		60 - 140		10/18/22 07:30	1

Action Limit Summary

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

Job ID: 380-24070-1

Client Sample ID: HALAWA WELLS UNITS 1

Lab Sample ID: 380-24070-1

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	^3+	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	^3+	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: 380-24070-1

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)
380-24070-1	HALAWA WELLS UNITS 1	94	105	97

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)
380-24398-B-1-A MS	Matrix Spike	99	101	87
380-24401-B-1-A DU	Duplicate	98	106	91
LCS 380-20849/3-A	Lab Control Sample	98	107	96
LCS 380-20849/4-A	Lab Control Sample Dup	97	108	95
MB 380-20849/1-A	Method Blank	98	106	93
MRL 380-20849/2-A	Lab Control Sample	88	121	90

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)
100804-B1	Method Blank	108	99	78	82	84
100804-BS1	Lab Control Sample	120	107	77	115	95
100804-BS2	Lab Control Sample Dup	119	107	102	121	96

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)
380-24070-1	HALAWA WELLS UNITS 1	108	106	84	111	88

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

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Surrogate Summary

Client: City & County of Honolulu

Job ID: 380-24070-1

Project/Site: RED-HILL

CRY = (d12-Chrysene)

NPT = (d8-Naphthalene)

PRY = (d12-Perylene)

Method: 8015 Gas (Purgeable) LL (EAL) - 8015 Gas (Purgeable) LL (EAL)

Matrix: WATER

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

BB :XACOSAI

Lab Sample ID	Client Sample ID	BB	:XACOSAI
22DSJ049WB	Method Blank		

Surrogate Legend

BB = BROMOBENZENE

HEXACOSANE = HEXACOSANE

Method: 8015 Gas (Purgeable) LL (EAL) - 8015 Gas (Purgeable) LL (EAL)

Matrix: WATER

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

BB :XACOSAI

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)

BFB

Lab Sample ID	Client Sample ID	BFB (60-140)
380-24070-2	TB HALAWA WELLS UNITS 1	96

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	BFB
22VG39J04B	Method Blank	

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	BFB (70-130)
22VG39J04C	LCD	118
22VG39J04L	Lab Control Sample	115

Surrogate Legend

BFB = BROMOFLUOROBENZENE

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QC Sample Results

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

Job ID: 380-24070-1

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

Lab Sample ID: MB 380-20849/1-A
Matrix: Water
Analysis Batch: 20905

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 20849

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		0.099	ug/L		10/15/22 15:26	10/17/22 13:28	1
2,4'-DDE	ND		0.099	ug/L		10/15/22 15:26	10/17/22 13:28	1
2,4'-DDT	ND		0.099	ug/L		10/15/22 15:26	10/17/22 13:28	1
2,4-Dinitrotoluene	ND		0.099	ug/L		10/15/22 15:26	10/17/22 13:28	1
2,6-Dinitrotoluene	ND		0.099	ug/L		10/15/22 15:26	10/17/22 13:28	1
4,4'-DDD	ND		0.099	ug/L		10/15/22 15:26	10/17/22 13:28	1
4,4'-DDE	ND		0.099	ug/L		10/15/22 15:26	10/17/22 13:28	1
4,4'-DDT	ND		0.099	ug/L		10/15/22 15:26	10/17/22 13:28	1
Acenaphthene	ND		0.099	ug/L		10/15/22 15:26	10/17/22 13:28	1
Acenaphthylene	ND		0.099	ug/L		10/15/22 15:26	10/17/22 13:28	1
Acetochlor	ND		0.099	ug/L		10/15/22 15:26	10/17/22 13:28	1
Alachlor	ND		0.049	ug/L		10/15/22 15:26	10/17/22 13:28	1
alpha-BHC	ND		0.099	ug/L		10/15/22 15:26	10/17/22 13:28	1
alpha-Chlordane	ND		0.049	ug/L		10/15/22 15:26	10/17/22 13:28	1
Anthracene	ND		0.020	ug/L		10/15/22 15:26	10/17/22 13:28	1
Atrazine	ND		0.049	ug/L		10/15/22 15:26	10/17/22 13:28	1
Benz(a)anthracene	ND		0.049	ug/L		10/15/22 15:26	10/17/22 13:28	1
Benzo[a]pyrene	ND		0.020	ug/L		10/15/22 15:26	10/17/22 13:28	1
Benzo[b]fluoranthene	ND		0.020	ug/L		10/15/22 15:26	10/17/22 13:28	1
Benzo[g,h,i]perylene	ND		0.049	ug/L		10/15/22 15:26	10/17/22 13:28	1
Benzo[k]fluoranthene	ND		0.020	ug/L		10/15/22 15:26	10/17/22 13:28	1
beta-BHC	ND		0.099	ug/L		10/15/22 15:26	10/17/22 13:28	1
Bromacil	ND		0.099	ug/L		10/15/22 15:26	10/17/22 13:28	1
Butachlor	ND		0.049	ug/L		10/15/22 15:26	10/17/22 13:28	1
Butylbenzylphthalate	ND		0.49	ug/L		10/15/22 15:26	10/17/22 13:28	1
Chlorobenzilate	ND		0.099	ug/L		10/15/22 15:26	10/17/22 13:28	1
Chloroneb	ND		0.099	ug/L		10/15/22 15:26	10/17/22 13:28	1
Chlorothalonil (Draconil, Bravo)	ND		0.099	ug/L		10/15/22 15:26	10/17/22 13:28	1
Chlorpyrifos	ND		0.049	ug/L		10/15/22 15:26	10/17/22 13:28	1
Chrysene	ND		0.020	ug/L		10/15/22 15:26	10/17/22 13:28	1
delta-BHC	ND		0.099	ug/L		10/15/22 15:26	10/17/22 13:28	1
Di(2-ethylhexyl)adipate	ND		0.59	ug/L		10/15/22 15:26	10/17/22 13:28	1
Bis(2-ethylhexyl) phthalate	ND		0.59	ug/L		10/15/22 15:26	10/17/22 13:28	1
Dibenz(a,h)anthracene	ND		0.049	ug/L		10/15/22 15:26	10/17/22 13:28	1
Diclorvos (DDVP)	ND		0.049	ug/L		10/15/22 15:26	10/17/22 13:28	1
Dieldrin	ND		0.20	ug/L		10/15/22 15:26	10/17/22 13:28	1
Diethylphthalate	ND		0.49	ug/L		10/15/22 15:26	10/17/22 13:28	1
Dimethylphthalate	ND		0.49	ug/L		10/15/22 15:26	10/17/22 13:28	1
Di-n-butyl phthalate	ND		0.99	ug/L		10/15/22 15:26	10/17/22 13:28	1
Di-n-octyl phthalate	ND		0.099	ug/L		10/15/22 15:26	10/17/22 13:28	1
Endosulfan I (Alpha)	ND		0.099	ug/L		10/15/22 15:26	10/17/22 13:28	1
Endosulfan II (Beta)	ND		0.099	ug/L		10/15/22 15:26	10/17/22 13:28	1
Endosulfan sulfate	ND		0.099	ug/L		10/15/22 15:26	10/17/22 13:28	1
Endrin	ND		0.099	ug/L		10/15/22 15:26	10/17/22 13:28	1
Endrin aldehyde	ND		0.099	ug/L		10/15/22 15:26	10/17/22 13:28	1
EPTC	ND		0.099	ug/L		10/15/22 15:26	10/17/22 13:28	1
Fluoranthene	ND		0.099	ug/L		10/15/22 15:26	10/17/22 13:28	1
Fluorene	ND		0.049	ug/L		10/15/22 15:26	10/17/22 13:28	1

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QC Sample Results

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

Job ID: 380-24070-1

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

Lab Sample ID: MB 380-20849/1-A
Matrix: Water
Analysis Batch: 20905

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 20849

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
gamma-Chlordane	ND		0.049	ug/L		10/15/22 15:26	10/17/22 13:28	1
Heptachlor	ND		0.040	ug/L		10/15/22 15:26	10/17/22 13:28	1
Heptachlor epoxide (isomer B)	ND		0.049	ug/L		10/15/22 15:26	10/17/22 13:28	1
Hexachlorobenzene	ND		0.049	ug/L		10/15/22 15:26	10/17/22 13:28	1
Hexachlorocyclopentadiene	ND		0.049	ug/L		10/15/22 15:26	10/17/22 13:28	1
Indeno[1,2,3-cd]pyrene	ND		0.049	ug/L		10/15/22 15:26	10/17/22 13:28	1
Isophorone	ND		0.49	ug/L		10/15/22 15:26	10/17/22 13:28	1
Lindane	ND		0.040	ug/L		10/15/22 15:26	10/17/22 13:28	1
Malathion	ND		0.099	ug/L		10/15/22 15:26	10/17/22 13:28	1
Methoxychlor	ND		0.099	ug/L		10/15/22 15:26	10/17/22 13:28	1
Metolachlor	ND		0.049	ug/L		10/15/22 15:26	10/17/22 13:28	1
Metribuzin	ND		0.049	ug/L		10/15/22 15:26	10/17/22 13:28	1
Molinate	ND		0.099	ug/L		10/15/22 15:26	10/17/22 13:28	1
Naphthalene	ND		0.30	ug/L		10/15/22 15:26	10/17/22 13:28	1
Parathion	ND		0.099	ug/L		10/15/22 15:26	10/17/22 13:28	1
Pendimethalin (Penoxaline)	ND		0.099	ug/L		10/15/22 15:26	10/17/22 13:28	1
Total Permethrin (mixed isomers)	ND		0.20	ug/L		10/15/22 15:26	10/17/22 13:28	1
Phenanthrene	ND		0.040	ug/L		10/15/22 15:26	10/17/22 13:28	1
Propachlor	ND		0.049	ug/L		10/15/22 15:26	10/17/22 13:28	1
Pyrene	ND		0.049	ug/L		10/15/22 15:26	10/17/22 13:28	1
Simazine	ND		0.049	ug/L		10/15/22 15:26	10/17/22 13:28	1
Terbacil	ND		0.099	ug/L		10/15/22 15:26	10/17/22 13:28	1
Terbutylazine	ND		0.099	ug/L		10/15/22 15:26	10/17/22 13:28	1
Thiobencarb	ND		0.20	ug/L		10/15/22 15:26	10/17/22 13:28	1
trans-Nonachlor	ND		0.049	ug/L		10/15/22 15:26	10/17/22 13:28	1
Trifluralin	ND		0.099	ug/L		10/15/22 15:26	10/17/22 13:28	1

Tentatively Identified Compound	MB Est. Result	MB Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Decane	1.31	T J N	ug/L		2.45	124-18-5	10/15/22 15:26	10/17/22 13:28	1
n-Hexadecanoic acid	0.547	T J N	ug/L		5.85	57-10-3	10/15/22 15:26	10/17/22 13:28	1
9-Octadecenamamide, (Z)-	0.541	T J N	ug/L		7.52	301-02-0	10/15/22 15:26	10/17/22 13:28	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	98		70 - 130	10/15/22 15:26	10/17/22 13:28	1
Triphenylphosphate	106		70 - 130	10/15/22 15:26	10/17/22 13:28	1
Perylene-d12	93		70 - 130	10/15/22 15:26	10/17/22 13:28	1

Lab Sample ID: LCS 380-20849/3-A
Matrix: Water
Analysis Batch: 20905

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 20849

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4'-DDD	1.97	2.04		ug/L		104	70 - 130
2,4'-DDE	1.97	1.97		ug/L		100	70 - 130
2,4'-DDT	1.97	2.18		ug/L		111	70 - 130
2,4-Dinitrotoluene	1.97	1.79		ug/L		91	70 - 130
2,6-Dinitrotoluene	1.97	1.79		ug/L		91	70 - 130
4,4'-DDD	1.97	2.20		ug/L		112	70 - 130

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QC Sample Results

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

Job ID: 380-24070-1

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

Lab Sample ID: LCS 380-20849/3-A
Matrix: Water
Analysis Batch: 20905

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 20849

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
4,4'-DDE	1.97	2.00		ug/L		102	70 - 130
4,4'-DDT	1.97	2.04		ug/L		104	70 - 130
Acenaphthene	1.97	1.80		ug/L		92	70 - 130
Acenaphthylene	1.97	1.77		ug/L		90	70 - 130
Acetochlor	1.97	1.86		ug/L		94	70 - 130
Alachlor	1.97	2.04		ug/L		104	70 - 130
alpha-BHC	1.97	2.13		ug/L		108	70 - 130
alpha-Chlordane	1.97	1.72		ug/L		87	70 - 130
Anthracene	1.97	1.94		ug/L		99	70 - 130
Atrazine	1.97	2.02		ug/L		103	70 - 130
Benz(a)anthracene	1.97	2.15		ug/L		109	70 - 130
Benzo[a]pyrene	1.97	2.16		ug/L		110	70 - 130
Benzo[b]fluoranthene	1.97	2.23		ug/L		113	70 - 130
Benzo[g,h,i]perylene	1.97	2.23		ug/L		113	70 - 130
Benzo[k]fluoranthene	1.97	2.27		ug/L		116	70 - 130
beta-BHC	1.97	2.04		ug/L		104	70 - 130
Bromacil	1.97	1.89		ug/L		96	70 - 130
Butachlor	1.97	2.16		ug/L		110	70 - 130
Butylbenzylphthalate	1.97	2.10		ug/L		107	70 - 130
Chlorobenzilate	1.97	2.02		ug/L		103	70 - 130
Chloroneb	1.97	2.11		ug/L		107	70 - 130
Chlorothalonil (Draconil, Bravo)	1.97	2.14		ug/L		109	70 - 130
Chlorpyrifos	1.97	2.17		ug/L		110	70 - 130
Chrysene	1.97	2.12		ug/L		108	70 - 130
delta-BHC	1.97	1.95		ug/L		99	70 - 130
Di(2-ethylhexyl)adipate	1.97	2.06		ug/L		105	70 - 130
Bis(2-ethylhexyl) phthalate	1.97	1.97		ug/L		100	70 - 130
Dibenz(a,h)anthracene	1.97	2.35		ug/L		120	70 - 130
Diclorvos (DDVP)	1.97	2.08		ug/L		106	70 - 130
Dieldrin	1.97	2.18		ug/L		111	70 - 130
Diethylphthalate	1.97	1.91		ug/L		97	70 - 130
Dimethylphthalate	1.97	1.94		ug/L		99	70 - 130
Di-n-butyl phthalate	3.93	4.40		ug/L		112	70 - 130
Di-n-octyl phthalate	1.97	1.80		ug/L		92	70 - 130
Endosulfan I (Alpha)	1.97	2.15		ug/L		109	70 - 130
Endosulfan II (Beta)	1.97	2.33		ug/L		119	70 - 130
Endosulfan sulfate	1.97	2.39		ug/L		122	70 - 130
Endrin	1.97	2.13		ug/L		108	70 - 130
Endrin aldehyde	1.97	1.47		ug/L		75	70 - 130
EPTC	1.97	1.84		ug/L		93	70 - 130
Fluoranthene	1.97	2.14		ug/L		109	70 - 130
Fluorene	1.97	1.93		ug/L		98	70 - 130
gamma-Chlordane	1.97	1.77		ug/L		90	70 - 130
Heptachlor	1.97	2.03		ug/L		103	70 - 130
Heptachlor epoxide (isomer B)	1.97	1.85		ug/L		94	70 - 130
Hexachlorobenzene	1.97	1.75		ug/L		89	70 - 130
Hexachlorocyclopentadiene	1.97	2.17		ug/L		111	70 - 130
Indeno[1,2,3-cd]pyrene	1.97	2.32		ug/L		118	70 - 130
Isophorone	1.97	1.98		ug/L		101	70 - 130

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QC Sample Results

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

Job ID: 380-24070-1

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

Lab Sample ID: LCS 380-20849/3-A
Matrix: Water
Analysis Batch: 20905

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 20849

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Lindane	1.97	2.14		ug/L		109	70 - 130
Malathion	1.97	2.12		ug/L		108	70 - 130
Methoxychlor	1.97	2.17		ug/L		110	70 - 130
Metolachlor	1.97	2.11		ug/L		107	70 - 130
Metribuzin	1.97	1.76		ug/L		89	70 - 130
Molinate	1.97	1.97		ug/L		100	70 - 130
Naphthalene	1.97	1.79		ug/L		91	70 - 130
Parathion	1.97	2.03		ug/L		103	70 - 130
Pendimethalin (Penoxaline)	1.97	2.01		ug/L		102	70 - 130
Phenanthrene	1.97	1.95		ug/L		99	70 - 130
Propachlor	1.97	2.08		ug/L		106	70 - 130
Pyrene	1.97	2.17		ug/L		110	70 - 130
Simazine	1.97	2.10		ug/L		107	70 - 130
Terbacil	1.97	1.90		ug/L		97	70 - 130
Terbutylazine	1.97	2.09		ug/L		106	70 - 130
Thiobencarb	1.97	1.92		ug/L		98	70 - 130
trans-Nonachlor	1.97	2.30		ug/L		117	70 - 130
Trifluralin	1.97	2.04		ug/L		104	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Nitro-m-xylene	98		70 - 130
Triphenylphosphate	107		70 - 130
Perylene-d12	96		70 - 130

Lab Sample ID: LCSD 380-20849/4-A
Matrix: Water
Analysis Batch: 20905

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 20849

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2,4'-DDD	1.97	1.97		ug/L		100	70 - 130	3	20
2,4'-DDE	1.97	1.96		ug/L		100	70 - 130	0	20
2,4'-DDT	1.97	2.16		ug/L		110	70 - 130	1	20
2,4-Dinitrotoluene	1.97	1.79		ug/L		91	70 - 130	0	20
2,6-Dinitrotoluene	1.97	1.74		ug/L		89	70 - 130	2	20
4,4'-DDD	1.97	2.23		ug/L		113	70 - 130	1	20
4,4'-DDE	1.97	2.08		ug/L		105	70 - 130	4	20
4,4'-DDT	1.97	2.02		ug/L		103	70 - 130	1	20
Acenaphthene	1.97	1.78		ug/L		90	70 - 130	1	20
Acenaphthylene	1.97	1.76		ug/L		89	70 - 130	1	20
Acetochlor	1.97	1.87		ug/L		95	70 - 130	1	20
Alachlor	1.97	2.03		ug/L		103	70 - 130	0	20
alpha-BHC	1.97	2.09		ug/L		106	70 - 130	2	20
alpha-Chlordane	1.97	1.71		ug/L		87	70 - 130	0	20
Anthracene	1.97	1.90		ug/L		96	70 - 130	2	20
Atrazine	1.97	2.00		ug/L		102	70 - 130	1	20
Benz(a)anthracene	1.97	2.16		ug/L		110	70 - 130	0	20
Benzo[a]pyrene	1.97	2.14		ug/L		108	70 - 130	1	20
Benzo[b]fluoranthene	1.97	2.24		ug/L		114	70 - 130	1	20

Eurofins Eaton Monrovia

QC Sample Results

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

Job ID: 380-24070-1

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

Lab Sample ID: LCSD 380-20849/4-A
Matrix: Water
Analysis Batch: 20905

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 20849

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	RPD Limit
							Limits	RPD		
Benzo[g,h,i]perylene	1.97	2.16		ug/L		110	70 - 130	3	20	
Benzo[k]fluoranthene	1.97	2.21		ug/L		112	70 - 130	3	20	
beta-BHC	1.97	2.03		ug/L		103	70 - 130	1	20	
Bromacil	1.97	1.86		ug/L		94	70 - 130	2	20	
Butachlor	1.97	2.13		ug/L		108	70 - 130	1	20	
Butylbenzylphthalate	1.97	2.09		ug/L		106	70 - 130	1	20	
Chlorobenzilate	1.97	2.10		ug/L		106	70 - 130	4	20	
Chloroneb	1.97	2.09		ug/L		106	70 - 130	1	20	
Chlorothalonil (Draconil, Bravo)	1.97	2.14		ug/L		109	70 - 130	0	20	
Chlorpyrifos	1.97	2.17		ug/L		110	70 - 130	0	20	
Chrysene	1.97	2.17		ug/L		110	70 - 130	2	20	
delta-BHC	1.97	1.95		ug/L		99	70 - 130	0	20	
Di(2-ethylhexyl)adipate	1.97	2.03		ug/L		103	70 - 130	2	20	
Bis(2-ethylhexyl) phthalate	1.97	1.97		ug/L		100	70 - 130	0	20	
Dibenz(a,h)anthracene	1.97	2.23		ug/L		113	70 - 130	5	20	
Diclorvos (DDVP)	1.97	2.08		ug/L		106	70 - 130	0	20	
Dieldrin	1.97	2.19		ug/L		111	70 - 130	1	20	
Diethylphthalate	1.97	1.91		ug/L		97	70 - 130	0	20	
Dimethylphthalate	1.97	1.97		ug/L		100	70 - 130	1	20	
Di-n-butyl phthalate	3.94	4.12		ug/L		105	70 - 130	7	20	
Di-n-octyl phthalate	1.97	1.77		ug/L		90	70 - 130	2	20	
Endosulfan I (Alpha)	1.97	2.06		ug/L		105	70 - 130	4	20	
Endosulfan II (Beta)	1.97	2.32		ug/L		118	70 - 130	0	20	
Endosulfan sulfate	1.97	2.32		ug/L		118	70 - 130	3	20	
Endrin	1.97	2.19		ug/L		111	70 - 130	3	20	
Endrin aldehyde	1.97	1.46		ug/L		74	70 - 130	1	20	
EPTC	1.97	1.85		ug/L		94	70 - 130	1	20	
Fluoranthene	1.97	2.15		ug/L		109	70 - 130	1	20	
Fluorene	1.97	1.87		ug/L		95	70 - 130	3	20	
gamma-Chlordane	1.97	1.73		ug/L		88	70 - 130	2	20	
Heptachlor	1.97	1.96		ug/L		99	70 - 130	3	20	
Heptachlor epoxide (isomer B)	1.97	1.73		ug/L		88	70 - 130	7	20	
Hexachlorobenzene	1.97	1.75		ug/L		89	70 - 130	0	20	
Hexachlorocyclopentadiene	1.97	2.12		ug/L		107	70 - 130	3	20	
Indeno[1,2,3-cd]pyrene	1.97	2.20		ug/L		112	70 - 130	5	20	
Isophorone	1.97	1.94		ug/L		98	70 - 130	2	20	
Lindane	1.97	2.09		ug/L		106	70 - 130	3	20	
Malathion	1.97	2.11		ug/L		107	70 - 130	0	20	
Methoxychlor	1.97	2.22		ug/L		113	70 - 130	2	20	
Metolachlor	1.97	2.17		ug/L		110	70 - 130	3	20	
Metribuzin	1.97	1.70		ug/L		86	70 - 130	3	20	
Molinate	1.97	1.92		ug/L		98	70 - 130	2	20	
Naphthalene	1.97	1.77		ug/L		90	70 - 130	1	20	
Parathion	1.97	2.01		ug/L		102	70 - 130	1	20	
Pendimethalin (Penoxaline)	1.97	1.98		ug/L		101	70 - 130	1	20	
Phenanthrene	1.97	1.92		ug/L		98	70 - 130	1	20	
Propachlor	1.97	2.07		ug/L		105	70 - 130	1	20	
Pyrene	1.97	2.18		ug/L		111	70 - 130	1	20	
Simazine	1.97	2.08		ug/L		106	70 - 130	1	20	

Eurofins Eaton Monrovia

QC Sample Results

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

Job ID: 380-24070-1

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

Lab Sample ID: LCSD 380-20849/4-A
Matrix: Water
Analysis Batch: 20905

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 20849

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Terbacil	1.97	1.84		ug/L		93	70 - 130	3	20
Terbutylazine	1.97	2.07		ug/L		105	70 - 130	1	20
Thiobencarb	1.97	1.94		ug/L		99	70 - 130	1	20
trans-Nonachlor	1.97	2.25		ug/L		114	70 - 130	2	20
Trifluralin	1.97	1.96		ug/L		99	70 - 130	4	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2-Nitro-m-xylene	97		70 - 130
Triphenylphosphate	108		70 - 130
Perylene-d12	95		70 - 130

Lab Sample ID: MRL 380-20849/2-A
Matrix: Water
Analysis Batch: 20905

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 20849

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
2,4'-DDD	0.0989	0.123		ug/L		124	50 - 150
2,4'-DDE	0.0989	0.102		ug/L		103	50 - 150
2,4'-DDT	0.0989	0.104		ug/L		105	50 - 150
2,4-Dinitrotoluene	0.0989	0.0829	J	ug/L		84	50 - 150
2,6-Dinitrotoluene	0.0989	0.0840	J	ug/L		85	50 - 150
4,4'-DDD	0.0989	0.114		ug/L		115	50 - 150
4,4'-DDE	0.0989	0.127		ug/L		128	50 - 150
4,4'-DDT	0.0989	0.124		ug/L		126	50 - 150
Acenaphthene	0.0989	0.0953	J	ug/L		96	50 - 150
Acenaphthylene	0.0989	0.0839	J	ug/L		85	50 - 150
Acetochlor	0.0495	0.0483	J	ug/L		98	50 - 150
Alachlor	0.0495	0.0647		ug/L		131	50 - 150
alpha-BHC	0.0989	0.115		ug/L		116	50 - 150
alpha-Chlordane	0.0495	0.0563		ug/L		114	50 - 150
Anthracene	0.0198	ND		ug/L		83	50 - 150
Atrazine	0.0495	0.0646		ug/L		131	50 - 150
Benz(a)anthracene	0.0495	0.0566		ug/L		114	50 - 150
Benzo[a]pyrene	0.0198	0.0175	J	ug/L		89	50 - 150
Benzo[b]fluoranthene	0.0198	0.0195	J	ug/L		98	50 - 150
Benzo[g,h,i]perylene	0.0495	0.0359	J	ug/L		73	50 - 150
Benzo[k]fluoranthene	0.0198	ND		ug/L		84	50 - 150
beta-BHC	0.0989	0.122		ug/L		124	50 - 150
Bromacil	0.0989	0.157	^3+	ug/L		159	50 - 150
Butachlor	0.0495	0.0640		ug/L		129	50 - 150
Butylbenzylphthalate	0.148	0.208	J	ug/L		140	50 - 150
Chlorobenzilate	0.0989	0.127		ug/L		129	50 - 150
Chloroneb	0.0989	0.100		ug/L		101	50 - 150
Chlorothalonil (Draconil, Bravo)	0.0989	0.0945	J	ug/L		96	50 - 150
Chlorpyrifos	0.0495	0.0532		ug/L		108	50 - 150
Chrysene	0.0198	0.0232		ug/L		117	50 - 150
delta-BHC	0.0989	0.117		ug/L		119	50 - 150
Di(2-ethylhexyl)adipate	0.297	0.410	J	ug/L		138	50 - 150

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QC Sample Results

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

Job ID: 380-24070-1

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

Lab Sample ID: MRL 380-20849/2-A
Matrix: Water
Analysis Batch: 20905

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 20849

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Bis(2-ethylhexyl) phthalate	0.593	0.807		ug/L		136	50 - 150
Dibenz(a,h)anthracene	0.0495	0.0356	J	ug/L		72	50 - 150
Diclorvos (DDVP)	0.0495	0.0577		ug/L		117	50 - 150
Dieldrin	0.0989	0.116	J	ug/L		117	50 - 150
Diethylphthalate	0.148	0.205	J	ug/L		138	50 - 150
Dimethylphthalate	0.297	0.291	J	ug/L		98	50 - 150
Di-n-butyl phthalate	0.297	0.424	J	ug/L		143	49 - 243
Di-n-octyl phthalate	0.0989	0.0936	J	ug/L		95	50 - 150
Endosulfan I (Alpha)	0.0989	0.114		ug/L		115	50 - 150
Endosulfan II (Beta)	0.0989	0.142		ug/L		144	50 - 150
Endosulfan sulfate	0.0989	0.0986	J	ug/L		100	50 - 150
Endrin	0.0989	0.158	^3+	ug/L		160	50 - 150
Endrin aldehyde	0.0989	0.115		ug/L		116	50 - 150
EPTC	0.0989	0.0933	J	ug/L		94	50 - 150
Fluoranthene	0.0495	0.0546	J	ug/L		110	50 - 150
Fluorene	0.0495	0.0504		ug/L		102	50 - 150
gamma-Chlordane	0.0495	0.0513		ug/L		104	50 - 150
Heptachlor	0.0396	0.0512		ug/L		130	50 - 150
Heptachlor epoxide (isomer B)	0.0495	0.0542		ug/L		110	50 - 150
Hexachlorobenzene	0.0495	0.0851	^3+	ug/L		172	50 - 150
Hexachlorocyclopentadiene	0.0495	0.0393	J	ug/L		79	50 - 150
Indeno[1,2,3-cd]pyrene	0.0495	0.0359	J	ug/L		73	50 - 150
Isophorone	0.0989	0.101	J	ug/L		102	50 - 150
Lindane	0.0495	0.0501		ug/L		101	50 - 150
Malathion	0.0989	0.0928	J	ug/L		94	50 - 150
Methoxychlor	0.0989	0.130		ug/L		132	50 - 150
Metolachlor	0.0495	0.0592		ug/L		120	50 - 150
Metribuzin	0.0495	0.0689		ug/L		139	50 - 150
Molinate	0.0989	0.101		ug/L		102	50 - 150
Naphthalene	0.0989	0.0944	J	ug/L		95	50 - 150
Parathion	0.0989	0.116		ug/L		118	50 - 150
Pendimethalin (Penoxaline)	0.0989	0.129		ug/L		130	50 - 150
Phenanthrene	0.0198	0.0199	J	ug/L		101	50 - 150
Propachlor	0.0495	0.0656		ug/L		133	50 - 150
Pyrene	0.0495	0.0582		ug/L		118	50 - 150
Simazine	0.0495	0.0740		ug/L		150	50 - 150
Terbacil	0.0989	0.115		ug/L		117	50 - 150
Terbuthylazine	0.0989	0.160	^3+	ug/L		162	50 - 150
Thiobencarb	0.0989	0.129	J	ug/L		130	50 - 150
trans-Nonachlor	0.0495	0.0454	J	ug/L		92	50 - 150
Trifluralin	0.0989	0.107		ug/L		108	50 - 150
		MRL	MRL				
Surrogate	%Recovery	Qualifier	Limits				
2-Nitro-m-xylene	88		70 - 130				
Triphenylphosphate	121		70 - 130				
Perylene-d12	90		70 - 130				

QC Sample Results

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

Job ID: 380-24070-1

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

Lab Sample ID: 380-24398-B-1-A MS
Matrix: Water
Analysis Batch: 20905

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 20849

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
2,4'-DDD	ND		1.95	2.04		ug/L		104	70 - 130
2,4'-DDE	ND		1.95	1.94		ug/L		100	70 - 130
2,4'-DDT	ND		1.95	2.19		ug/L		112	70 - 130
2,4-Dinitrotoluene	ND		1.95	1.85		ug/L		95	70 - 130
2,6-Dinitrotoluene	ND		1.95	1.86		ug/L		95	70 - 130
4,4'-DDD	ND		1.95	2.19		ug/L		112	70 - 130
4,4'-DDE	ND		1.95	2.04		ug/L		105	70 - 130
4,4'-DDT	ND		1.95	1.99		ug/L		102	70 - 130
Acenaphthene	ND		1.95	1.76		ug/L		90	70 - 130
Acenaphthylene	ND		1.95	1.71		ug/L		88	70 - 130
Acetochlor	ND		1.95	1.77		ug/L		91	70 - 130
Alachlor	ND		1.95	1.96		ug/L		100	70 - 130
alpha-BHC	ND		1.95	2.12		ug/L		109	70 - 130
alpha-Chlordane	ND		1.95	1.66		ug/L		85	70 - 130
Anthracene	ND	F1	1.95	1.16	F1	ug/L		60	70 - 130
Atrazine	ND		1.95	1.94		ug/L		99	70 - 130
Benz(a)anthracene	ND		1.95	1.85		ug/L		95	70 - 130
Benzo[a]pyrene	ND		1.95	1.58		ug/L		81	70 - 130
Benzo[b]fluoranthene	ND		1.95	2.20		ug/L		113	70 - 130
Benzo[g,h,i]perylene	ND		1.95	2.19		ug/L		112	70 - 130
Benzo[k]fluoranthene	ND		1.95	2.19		ug/L		112	70 - 130
beta-BHC	ND		1.95	2.01		ug/L		103	70 - 130
Bromacil	ND	^3+	1.95	1.87		ug/L		96	70 - 130
Butachlor	ND		1.95	2.11		ug/L		108	70 - 130
Butylbenzylphthalate	ND		1.95	2.28		ug/L		106	70 - 130
Chlorobenzilate	ND		1.95	2.13		ug/L		109	70 - 130
Chloroneb	ND		1.95	2.10		ug/L		108	70 - 130
Chlorothalonil (Draconil, Bravo)	ND		1.95	2.08		ug/L		107	70 - 130
Chlorpyrifos	ND		1.95	2.07		ug/L		106	70 - 130
Chrysene	ND		1.95	2.17		ug/L		111	70 - 130
delta-BHC	ND		1.95	1.91		ug/L		98	70 - 130
Di(2-ethylhexyl)adipate	ND		1.95	2.02		ug/L		104	70 - 130
Bis(2-ethylhexyl) phthalate	ND		1.95	2.19		ug/L		112	70 - 130
Dibenz(a,h)anthracene	ND		1.95	2.32		ug/L		119	70 - 130
Diclorvos (DDVP)	ND		1.95	1.94		ug/L		99	70 - 130
Dieldrin	ND		1.95	2.14		ug/L		110	70 - 130
Diethylphthalate	ND		1.95	1.92		ug/L		98	70 - 130
Dimethylphthalate	ND		1.95	1.86		ug/L		96	70 - 130
Di-n-butyl phthalate	ND		3.90	4.20		ug/L		108	70 - 130
Di-n-octyl phthalate	ND		1.95	1.96		ug/L		101	70 - 130
Endosulfan I (Alpha)	ND		1.95	2.11		ug/L		108	70 - 130
Endosulfan II (Beta)	ND		1.95	2.31		ug/L		118	70 - 130
Endosulfan sulfate	ND		1.95	2.32		ug/L		119	70 - 130
Endrin	ND	^3+	1.95	1.92		ug/L		98	70 - 130
Endrin aldehyde	ND		1.95	1.38		ug/L		71	70 - 130
EPTC	ND		1.95	1.86		ug/L		95	70 - 130
Fluoranthene	ND		1.95	2.10		ug/L		107	70 - 130
Fluorene	ND		1.95	1.90		ug/L		97	70 - 130

Eurofins Eaton Monrovia

QC Sample Results

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

Job ID: 380-24070-1

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

Lab Sample ID: 380-24398-B-1-A MS
Matrix: Water
Analysis Batch: 20905

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 20849

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec
	Result	Qualifier	Added	Result	Qualifier				
gamma-Chlordane	ND		1.95	1.74		ug/L		89	70 - 130
Heptachlor	ND		1.95	2.01		ug/L		103	70 - 130
Heptachlor epoxide (isomer B)	ND		1.95	1.64		ug/L		84	70 - 130
Hexachlorobenzene	ND	^3+	1.95	1.78		ug/L		91	70 - 130
Hexachlorocyclopentadiene	ND		1.95	2.22		ug/L		114	70 - 130
Indeno[1,2,3-cd]pyrene	ND		1.95	2.30		ug/L		118	70 - 130
Isophorone	ND		1.95	1.84		ug/L		94	70 - 130
Lindane	ND		1.95	2.10		ug/L		108	70 - 130
Malathion	ND		1.95	2.15		ug/L		110	70 - 130
Methoxychlor	ND		1.95	2.30		ug/L		118	70 - 130
Metolachlor	ND		1.95	2.06		ug/L		106	70 - 130
Metribuzin	ND		1.95	1.64		ug/L		84	70 - 130
Molinate	ND		1.95	1.93		ug/L		99	70 - 130
Naphthalene	ND		1.95	1.76		ug/L		90	70 - 130
Parathion	ND		1.95	2.06		ug/L		106	70 - 130
Pendimethalin (Penoxaline)	ND		1.95	2.02		ug/L		103	70 - 130
Phenanthrene	ND		1.95	1.91		ug/L		98	70 - 130
Propachlor	ND		1.95	2.04		ug/L		105	70 - 130
Pyrene	ND		1.95	2.11		ug/L		108	70 - 130
Simazine	ND		1.95	2.01		ug/L		103	70 - 130
Terbacil	ND		1.95	1.76		ug/L		90	70 - 130
Terbutylazine	ND	^3+	1.95	2.03		ug/L		104	70 - 130
Thiobencarb	ND		1.95	1.92		ug/L		98	70 - 130
trans-Nonachlor	ND		1.95	2.23		ug/L		114	70 - 130
Trifluralin	ND		1.95	2.01		ug/L		103	70 - 130

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
2-Nitro-m-xylene	99		70 - 130
Triphenylphosphate	101		70 - 130
Perylene-d12	87		70 - 130

Lab Sample ID: 380-24401-B-1-A DU
Matrix: Water
Analysis Batch: 20905

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 20849

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	RPD	Limit
	Result	Qualifier	Result	Qualifier					
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	

Eurofins Eaton Monrovia

QC Sample Results

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

Job ID: 380-24070-1

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

Lab Sample ID: 380-24401-B-1-A DU
Matrix: Water
Analysis Batch: 20905

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 20849

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
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	^3+	ND		ug/L		NC	20
Butachlor	ND		ND		ug/L		NC	20
Butylbenzylphthalate	ND		ND		ug/L		NC	20
Chlorobenzilate	ND		ND		ug/L		NC	20
Chloroneb	ND		ND		ug/L		NC	20
Chlorothalonil (Draconil, Bravo)	ND		ND		ug/L		NC	20
Chlorpyrifos	ND		ND		ug/L		NC	20
Chrysene	ND		ND		ug/L		NC	20
delta-BHC	ND		ND		ug/L		NC	20
Di(2-ethylhexyl)adipate	ND		ND		ug/L		NC	20
Bis(2-ethylhexyl) phthalate	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
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	^3+	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	^3+	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

Eurofins Eaton Monrovia

QC Sample Results

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

Job ID: 380-24070-1

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

Lab Sample ID: 380-24401-B-1-A DU
Matrix: Water
Analysis Batch: 20905

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 20849

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
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	^3+	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
	<i>DU</i>	<i>DU</i>						
Surrogate	%Recovery	Qualifier	Limits					
2-Nitro-m-xylene	98		70 - 130					
Triphenylphosphate	106		70 - 130					
Perylene-d12	91		70 - 130					

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

Lab Sample ID: 100804-B1
Matrix: BlankMatrix
Analysis Batch: O-40002

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: O-40002_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 11:46	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 11:46	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 11:46	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 11:46	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 11:46	1
Acenaphthene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 11:46	1
Acenaphthylene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 11:46	1
Anthracene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 11:46	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 11:46	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 11:46	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 11:46	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 11:46	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 11:46	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 11:46	1
Biphenyl	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 11:46	1
Chrysene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 11:46	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 11:46	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 11:46	1
Dibenzothiophene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 11:46	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		10/17/22 00:00	10/24/22 11:46	1
Fluoranthene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 11:46	1
Fluorene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 11:46	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 11:46	1

Eurofins Eaton Monrovia

QC Sample Results

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

Job ID: 380-24070-1

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

Lab Sample ID: 100804-B1
Matrix: BlankMatrix
Analysis Batch: O-40002

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: O-40002_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 11:46	1
Perylene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 11:46	1
Phenanthrene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 11:46	1
Pyrene	ND		0.005	0.001	µg/L		10/17/22 00:00	10/24/22 11:46	1

Surrogate	Blank %Recovery	Blank Qualifier	Limits	Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	108		27 - 133	10/17/22 00:00	10/24/22 11:46	1
(d10-Phenanthrene)	99		43 - 129	10/17/22 00:00	10/24/22 11:46	1
(d12-Chrysene)	78		52 - 144	10/17/22 00:00	10/24/22 11:46	1
(d12-Perylene)	84		36 - 161	10/17/22 00:00	10/24/22 11:46	1
(d8-Naphthalene)	82		25 - 125	10/17/22 00:00	10/24/22 11:46	1

Lab Sample ID: 100804-BS1
Matrix: BlankMatrix
Analysis Batch: O-40002

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: O-40002_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1-Methylnaphthalene	0.5	0.519		µg/L		104	31 - 128
1-Methylphenanthrene	0.5	0.482		µg/L		96	66 - 127
2,3,5-Trimethylnaphthalene	0.5	0.51		µg/L		102	55 - 122
2,6-Dimethylnaphthalene	0.5	0.508		µg/L		102	48 - 120
2-Methylnaphthalene	0.5	0.526		µg/L		105	47 - 130
Acenaphthene	0.5	0.523		µg/L		105	53 - 131
Acenaphthylene	0.5	0.499		µg/L		100	43 - 140
Anthracene	0.5	0.503		µg/L		101	58 - 135
Benz[a]anthracene	0.5	0.632		µg/L		126	55 - 145
Benzo[a]pyrene	0.5	0.478		µg/L		96	51 - 143
Benzo[b]fluoranthene	0.5	0.386		µg/L		77	46 - 165
Benzo[e]pyrene	0.5	0.465		µg/L		93	42 - 152
Benzo[g,h,i]perylene	0.5	0.486		µg/L		97	63 - 133
Benzo[k]fluoranthene	0.5	0.425		µg/L		85	56 - 145
Biphenyl	0.5	0.525		µg/L		105	56 - 119
Chrysene	0.5	0.486		µg/L		97	56 - 141
Dibenz[a,h]anthracene	0.5	0.451		µg/L		90	55 - 150
Dibenzo[a,l]pyrene	0.5	0.369		µg/L		74	50 - 150
Dibenzothiophene	0.5	0.515		µg/L		103	75 - 113
Disalicylidenepropanediamine	50	39.4		µg/L		79	50 - 150
Fluoranthene	0.5	0.488		µg/L		98	60 - 146
Fluorene	0.5	0.51		µg/L		102	58 - 131
Indeno[1,2,3-cd]pyrene	0.5	0.498		µg/L		100	50 - 151
Naphthalene	0.5	0.534		µg/L		107	41 - 126
Perylene	0.5	0.471		µg/L		94	48 - 141
Phenanthrene	0.5	0.527		µg/L		105	67 - 127
Pyrene	0.5	0.48		µg/L		96	54 - 156

Surrogate	LCS %Recovery	LCS Qualifier	Limits
(d10-Acenaphthene)	120		27 - 133
(d10-Phenanthrene)	107		43 - 129

Eurofins Eaton Monrovia

QC Sample Results

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

Job ID: 380-24070-1

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

Lab Sample ID: 100804-BS1
Matrix: BlankMatrix
Analysis Batch: O-40002

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: O-40002_P

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
(d12-Chrysene)	77		52 - 144
(d12-Perylene)	95		36 - 161
(d8-Naphthalene)	115		25 - 125

Lab Sample ID: 100804-BS2
Matrix: BlankMatrix
Analysis Batch: O-40002

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: O-40002_P

Analyte	Spike Added	LCS DUP Result	LCS DUP Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
1-Methylnaphthalene	0.5	0.492		µg/L		98	31 - 128	6	30	
1-Methylphenanthrene	0.5	0.621		µg/L		124	66 - 127	25	30	
2,3,5-Trimethylnaphthalene	0.5	0.507		µg/L		101	55 - 122	1	30	
2,6-Dimethylnaphthalene	0.5	0.491		µg/L		98	48 - 120	4	30	
2-Methylnaphthalene	0.5	0.502		µg/L		100	47 - 130	5	30	
Acenaphthene	0.5	0.534		µg/L		107	53 - 131	2	30	
Acenaphthylene	0.5	0.491		µg/L		98	43 - 140	2	30	
Anthracene	0.5	0.518		µg/L		104	58 - 135	3	30	
Benz[a]anthracene	0.5	0.658		µg/L		132	55 - 145	5	30	
Benzo[a]pyrene	0.5	0.479		µg/L		96	51 - 143	0	30	
Benzo[b]fluoranthene	0.5	0.461		µg/L		92	46 - 165	18	30	
Benzo[e]pyrene	0.5	0.472		µg/L		94	42 - 152	1	30	
Benzo[g,h,i]perylene	0.5	0.491		µg/L		98	63 - 133	1	30	
Benzo[k]fluoranthene	0.5	0.536		µg/L		107	56 - 145	23	30	
Biphenyl	0.5	0.514		µg/L		103	56 - 119	2	30	
Chrysene	0.5	0.493		µg/L		99	56 - 141	2	30	
Dibenz[a,h]anthracene	0.5	0.454		µg/L		91	55 - 150	1	30	
Dibenzo[a,l]pyrene	0.5	0.491		µg/L		98	50 - 150	28	30	
Dibenzothiophene	0.5	0.521		µg/L		104	75 - 113	1	30	
Disalicylidenepropanediamine	50	34.7		µg/L		69	50 - 150	14	30	
Fluoranthene	0.5	0.638		µg/L		128	60 - 146	27	30	
Fluorene	0.5	0.525		µg/L		105	58 - 131	3	30	
Indeno[1,2,3-cd]pyrene	0.5	0.499		µg/L		100	50 - 151	0	30	
Naphthalene	0.5	0.509		µg/L		102	41 - 126	5	30	
Perylene	0.5	0.475		µg/L		95	48 - 141	1	30	
Phenanthrene	0.5	0.539		µg/L		108	67 - 127	3	30	
Pyrene	0.5	0.65		µg/L		130	54 - 156	30	30	

Surrogate	LCS DUP LCS DUP		Limits
	%Recovery	Qualifier	
(d10-Acenaphthene)	119		27 - 133
(d10-Phenanthrene)	107		43 - 129
(d12-Chrysene)	102		52 - 144
(d12-Perylene)	96		36 - 161
(d8-Naphthalene)	121		25 - 125

QC Sample Results

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

Job ID: 380-24070-1

Method: 8015 Gas (Purgeable) LL (EAL) - 8015 Gas (Purgeable) LL (EAL)

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

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
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 MB		Limits			Prepared	Analyzed	Dil Fac	
	%Recovery	Qualifier							
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
Surrogate	LCS LCS		Limits			Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier						
BROMOBENZENE	103		60 - 130					
HEXACOSANE	99		60 - 130					

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

Lab Sample ID: 22VG39J04B
Matrix: WATER
Analysis Batch: 22VG39J04

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
GASOLINE	ND	U	0.020		mg/L			10/18/22 01:40	1
Surrogate	MB MB		Limits			Prepared	Analyzed	Dil Fac	
	%Recovery	Qualifier							
BROMOFLUOROBENZENE							10/18/22 01:40	1	

Lab Sample ID: 22VG39J04L
Matrix: WATER
Analysis Batch: 22VG39J04

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
								GASOLINE
Surrogate	LCS LCS		Limits			Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier						
BROMOFLUOROBENZENE	115		70 - 130					

QC Association Summary

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

Job ID: 380-24070-1

GC/MS Semi VOA

Prep Batch: 20849

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-24070-1	HALAWA WELLS UNITS 1	Total/NA	Drinking Water	525.2	
MB 380-20849/1-A	Method Blank	Total/NA	Water	525.2	
LCS 380-20849/3-A	Lab Control Sample	Total/NA	Water	525.2	
LCSD 380-20849/4-A	Lab Control Sample Dup	Total/NA	Water	525.2	
MRL 380-20849/2-A	Lab Control Sample	Total/NA	Water	525.2	
380-24398-B-1-A MS	Matrix Spike	Total/NA	Water	525.2	
380-24401-B-1-A DU	Duplicate	Total/NA	Water	525.2	

Analysis Batch: 20905

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-24070-1	HALAWA WELLS UNITS 1	Total/NA	Drinking Water	525.2	20849
MB 380-20849/1-A	Method Blank	Total/NA	Water	525.2	20849
LCS 380-20849/3-A	Lab Control Sample	Total/NA	Water	525.2	20849
LCSD 380-20849/4-A	Lab Control Sample Dup	Total/NA	Water	525.2	20849
MRL 380-20849/2-A	Lab Control Sample	Total/NA	Water	525.2	20849
380-24398-B-1-A MS	Matrix Spike	Total/NA	Water	525.2	20849
380-24401-B-1-A DU	Duplicate	Total/NA	Water	525.2	20849

Subcontract

Analysis Batch: O-40002

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-24070-1	HALAWA WELLS UNITS 1	Total/NA	Drinking Water	625 PAH Physis LL (EAL) + TICs	O-40002_P
100804-B1	Method Blank	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-40002_P
100804-BS1	Lab Control Sample	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-40002_P
100804-BS2	Lab Control Sample Dup	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-40002_P

Analysis Batch: 22DSJ049W

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
22DSJ049WB	Method Blank	Total/NA	WATER	8015 Gas (Purgeable) LL (EAL)	
22DSJ049WL	Lab Control Sample	Total/NA	WATER	8015 Gas (Purgeable) LL (EAL)	

Analysis Batch: 22VG39J04

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-24070-2	TB HALAWA WELLS UNITS 1	Total/NA	Drinking Water	8015 Gas (Purgeable) LL (EAL)	
22VG39J04B	Method Blank	Total/NA	WATER	8015 Gas (Purgeable) LL (EAL)	
22VG39J04L	Lab Control Sample	Total/NA	WATER	8015 Gas (Purgeable) LL (EAL)	

QC Association Summary

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

Job ID: 380-24070-1

Subcontract

Prep Batch: O-40002_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-24070-1	HALAWA WELLS UNITS 1	Total/NA	Drinking Water	EPA_625	
100804-B1	Method Blank	Total/NA	BlankMatrix	EPA_625	
100804-BS1	Lab Control Sample	Total/NA	BlankMatrix	EPA_625	
100804-BS2	Lab Control Sample Dup	Total/NA	BlankMatrix	EPA_625	

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

Lab Chronicle

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

Job ID: 380-24070-1

Client Sample ID: HALAWA WELLS UNITS 1

Lab Sample ID: 380-24070-1

Date Collected: 10/11/22 10:30

Matrix: Drinking Water

Date Received: 10/12/22 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	525.2			20849	N8NE	EA MON	10/15/22 15:26
Total/NA	Analysis	525.2		1	20905	UPAC	EA MON	10/17/22 14:49
Total/NA	Prep	EPA_625		1	O-40002_P			10/17/22 00:00
Total/NA	Analysis	625 PAH Physis LL (EAL) + TICs		1	O-40002	YC		10/24/22 16:57

Client Sample ID: TB HALAWA WELLS UNITS 1

Lab Sample ID: 380-24070-2

Date Collected: 10/11/22 10:30

Matrix: Drinking Water

Date Received: 10/12/22 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015 Gas (Purgeable) LL (EAL)		1	22VG39J04	SCerva		10/18/22 07:30

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: 380-24070-1

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	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	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	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
525.2	525.2	Drinking Water	Isophorone
525.2	525.2	Drinking Water	Malathion
525.2	525.2	Drinking Water	Molinate

Accreditation/Certification Summary

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

Job ID: 380-24070-1

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
-----------	---------	-----------------------	-----------------

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	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: 380-24070-1

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: 380-24070-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	PWSID Number
380-24070-1	HALAWA WELLS UNITS 1	Drinking Water	10/11/22 10:30	10/12/22 10:00	HI0000331
380-24070-2	TB HALAWA WELLS UNITS 1	Drinking Water	10/11/22 10:30	10/12/22 10:00	

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Date: 11-09-2022
EMAX Batch No.: 22J198

Attn: Jackie Contreras

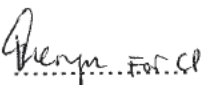
Eurofins Eaton Analytical
750 Royal Oaks Dr., Suite 100
Monrovia, CA 91016-3629

Subject: Laboratory Report
Project: 380-24070

Enclosed is the Laboratory report for samples received on 10/13/22.
The data reported relate only to samples listed below :

Sample ID	Control #	Col Date	Matrix	Analysis
380-24070-1	J198-01	10/11/22	WATER	TPH GASOLINE TPH DIESEL & MOTOR OIL
380-24070-2	J198-02	10/11/22	WATER	TPH GASOLINE

The results are summarized on the following pages.
Please feel free to call if you have any questions concerning these results.

Sincerely yours,

Caspar J. Pang
Laboratory Director

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



Monrovia, CA (Suite 100)

221198

750 Royal Oaks Drive Suite 100
Monrovia, CA 91015
Phone: 626-386-1100

Chain of Custody Record



eurofins

Environment Testing
America

Client Information (Sub Contract Lab)

Client Contact: **EMAX Laboratories Inc**
 Shipping/Receiving: **EMAX Laboratories Inc**
 Phone: **380-241151**
 E-Mail: **Rachelle.Atrada@eurofins.com**
 State of Origin: **Hawaii**
 Carrier Tracking No(s): **380-24115-1**
 Page: **Page 1 of 1**

Address: **3051 Fujita Street, Torrance, CA 90505**
 Due Date Requested: **10/26/2022**
 TAT Requested (days): **TAT Requested**
 Analysis Requested
 Job #: **380-24070-1**

Project Name: **RED-HILL**
 Project #: **38001111**
 Site: **Honolulu BWS Sites**
 SSON#: **SSON#**
 Email: **WO #**
 PO #: **PO #**
 Preservation Codes:
 A - HCL
 B - NaOH
 C - Zn Acetate
 D - Nitric Acid
 E - NaHSO4
 F - MeOH
 G - Anhydriol
 H - Ascorbic Acid
 I - Ice
 J - DI Water
 K - EDTA
 L - EDTA
 M - Hexane
 N - None
 O - AsH2O2
 P - Na2OAS
 Q - Na2SO3
 R - NaHSO4
 S - H2SO4
 T - TSP Dodecylhydrate
 U - Acetone
 V - MCAA
 W - pH 4.5
 Y - Trizma
 Z - other (specify)

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Seawater, Overboard, BT=Tissue, AA=)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Analysis Requested	Total Number of containers	Special Instructions/Note:
HALAWA WELLS UNITS 1 (380-24070-1)	10/1/1/22	10:30	Water	Water	X	X		6	See Attached Instructions
TB HALAWA WELLS UNITS 1 (380-24070-2)	10/1/1/22	10:30	Water	Water	X	X		2	See Attached Instructions

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

Possible Hazard Identification

Deliverable Requested: **I, II, III, IV, Other (specify)** Primary Deliverable Rank: **2**
 Empty Kit Relinquished by: **Date:** **Time:** Method of Shipment: **Archive For** **Months**

Relinquished by: **WR** Date/Time: **10/13/22** Company: **ES&S** Received by: **Ken R** Date/Time: **10/15/22 12:53** Company: **EMAX**

Relinquished by: **WR** Date/Time: **10/13/22** Company: **ES&S** Received by: **Ken R** Date/Time: **10/15/22 12:53** Company: **EMAX**

Relinquished by: **WR** Date/Time: **10/13/22** Company: **ES&S** Received by: **Ken R** Date/Time: **10/15/22 12:53** Company: **EMAX**

Custody Seals Intact: **Δ Yes Δ No** Custody Seal No.: **Δ 2.2 Δ 4.1** Cooler Temperature(s) °C and Other Remarks:

SAMPLE RECEIPT FORM 1



Fedex UPS GSO Others
 EMAX Courier Client Delivery
 Type of Delivery
 ECN 222198
 Recipient Ann Ramo
 Date 10/13/22
 Time 13:53

COC INSPECTION
 Client Name Client PM/TC
 Address Tel # / Fax #
 Safety Issues (if any) High concentrations expected
 From Superfund Site
 Sample Name the pills
 Counter Signature
 Sampling Date/Time
 Analysis Required
 Rad screening required
 Sample ID
 Preservative (if any)
 TAT
 Matrix

PACKAGING INSPECTION
 Container Cooler
 Condition Custody Seal Intact
 Packaging Bubble Pack Styrofoam
 Temperatures (Cool, 56 °C but not frozen)
 Thermometer:
 A - SN _____ °C Cooler 6
 B - SN 210740231 °C Cooler 7
 C - SN _____ °C Cooler 8
 D - SN 210740272 °C Cooler 9
 Cooler 10
 Cooler 1
 Cooler 2 4.1 °C Cooler 3
 Cooler 4
 Cooler 5
 Sufficient
 Popcorn
 Damaged
 Other

Lab Sample ID	Lab Sample Container ID	Code	Client Sample Label ID / Information	Corrective Action
2	3-8	022	10/6 & 10/10/22	R1

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 Analysis mismatch COC vs label
 - D3 Sample ID mismatch COC vs label
 - D4 Sample ID is not indicated in _____
 - D5 Container - [improper] [leaking] [broken]
 - D6 Date/Time is not indicated in _____
 - D7 Date/Time mismatch COC vs label
 - D8 Sample listed in COC is not received
 - D9 Sample received is not listed in COC
 - D10 No invalidate on corrections in COC/label
 - D11 Container count mismatch COC vs received
 - D12 Container size mismatch COC vs received
- Code Description-Sample Management
- D13 Out of Holding Time
 - D14 Bubble is >6mm
 - D15 No trip blank in cooler
 - D16 Preservation not indicated in _____
 - D17 Preservation mismatch COC vs label
 - D18 Insufficient chemical preservative
 - D19 Insufficient Sample
 - D20 No filtration info for dissolved analysis
 - D21 No sample for moisture determination
 - D22 No data
 - D23
 - D24

REVIEWS:

Sample Labeling Jouanne Soles-Parks Date 10/13/22
 SRF Ann Ramo Date 10/13/22
 PM MS Date 10/13/22

REPORT ID: 22J198
 EMAX Laboratories, Inc. 3051 Fujita St., Torrance, CA 90505
 Page 3 of 23

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

380-24070

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

SDG#: 22J198



CASE NARRATIVE

Client : EUROFINS EATON ANALYTICAL

Project: 380-24070

SDG : 22J198

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

A total of two(2) water samples were received on 10/13/22 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. VG39J04B - 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. VG39J04L/VG39J04C 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 J199-01M/J199-01S. Refer to Matrix QC summary form for details.

Surrogate

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

Sample Analysis

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

LAB CHROMICLE
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client : EUROFINS EATON ANALYTICAL
 Project : 380-24070
 SDG NO. : 22J198
 Instrument ID : GCT039

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
									WATER
HBLK1W	VG39J04B	1	NA	10/18/2201:40	10/18/2201:40	EJ16057A	EJ16056A	22VG39J04	Method Blank
LCS1W	VG39J04L	1	NA	10/18/2202:19	10/18/2202:19	EJ16058A	EJ16056A	22VG39J04	Lab Control Sample (LCS)
LCD1W	VG39J04C	1	NA	10/18/2202:58	10/18/2202:58	EJ16059A	EJ16056A	22VG39J04	LCS Duplicate
380-24070-1	J198-01	1	NA	10/18/2206:51	10/18/2206:51	EJ16065A	EJ16056A	22VG39J04	Field Sample
380-24070-2	J198-02	1	NA	10/18/2207:30	10/18/2207:30	EJ16066A	EJ16056A	22VG39J04	Field Sample

FN - Filename
 % Moist - Percent Moisture



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SAMPLE RESULTS

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

```

=====
Client      : EUROFINS EATON ANALYTICAL   Date Collected: 10/11/22 10:30
Project     : 380-24070                   Date Received: 10/13/22
Batch No.   : 22J198                       Date Extracted: 10/18/22 06:51
Sample ID   : 380-24070-1                 Date Analyzed: 10/18/22 06:51
Lab Samp ID: J198-01                       Dilution Factor: 1
Lab File ID: EJ16065A                       Matrix: WATER
Ext Btch ID: 22VG39J04                     % Moisture: NA
Calib. Ref.: EJ16056A                     Instrument ID: 39
=====

```

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

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

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

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

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

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=====
Client      : EUROFINS EATON ANALYTICAL   Date Collected: 10/11/22 10:30
Project     : 380-24070                   Date Received: 10/13/22
Batch No.   : 22J198                       Date Extracted: 10/18/22 07:30
Sample ID   : 380-24070-2                 Date Analyzed: 10/18/22 07:30
Lab Samp ID: J198-02                       Dilution Factor: 1
Lab File ID: EJ16066A                       Matrix: WATER
Ext Btch ID: 22VG39J04                     % Moisture: NA
Calib. Ref.: EJ16056A                     Instrument ID: 39
=====

```

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	0.0384	0.0400	96	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 : 380-24070
BATCH NO. : 22J198
METHOD : 5030B/8015B

MATRIX : WATER		% MOISTURE:NA
DILUTION FACTOR: 1	1	1
SAMPLE ID : MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID : VG39J04B	VG39J04L	VG39J04C
LAB FILE ID : EJ16057A	EJ16058A	EJ16059A
DATE PREPARED : 10/18/22 01:40	10/18/22 02:19	10/18/22 02:58
DATE ANALYZED : 10/18/22 01:40	10/18/22 02:19	10/18/22 02:58
PREP BATCH : 22VG39J04	22VG39J04	22VG39J04
CALIBRATION REF: EJ16056A	EJ16056A	EJ16056A

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	0.424	85	0.500	0.444	89	5	60-130	30

SURROGATE PARAMETER	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	QCLimit (%)
Bromofluorobenzene	0.0400	0.0459	115	0.0400	0.0472	118	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 : 380-24383
BATCH NO. : 22J199
METHOD : 5030B/8015B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR:	1	1	1
SAMPLE ID	: 380-24383-1	380-24383-1MS	380-24383-1MSD
LAB SAMPLE ID	: J199-01	J199-01M	J199-01S
LAB FILE ID	: EJ16060A	EJ16061A	EJ16062A
DATE PREPARED	: 10/18/22 03:37	10/18/22 04:16	10/18/22 04:55
DATE ANALYZED	: 10/18/22 03:37	10/18/22 04:16	10/18/22 04:55
PREP BATCH	: 22VG39J04	22VG39J04	22VG39J04
CALIBRATION REF:	EJ16056A	EJ16056A	EJ16056A

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	0.420	84	0.500	0.408	82	3	50-130	30

SURROGATE PARAMETER	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	QCLimit (%)
Bromofluorobenzene	0.0400	0.0462	116	0.0400	0.0468	117	60-140

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

LABORATORY REPORT FOR

EUROFINS EATON ANALYTICAL

380-24070

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

SDG#: 22J198



CASE NARRATIVE

Client : EUROFINS EATON ANALYTICAL

Project: 380-24070

SDG : 22J198

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

One(1) water sample was received on 10/13/22 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 : 380-24070

SDG NO. : 22J198
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
380-24070-1	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)
	J198-01	1	NA	10/25/2200:50	10/22/2213:30	LJ24047A	LJ24023A	22DSJ049W	Field Sample

FN - Filename
% Moist - Percent Moisture



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SAMPLE RESULTS

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : EUROFINS EATON ANALYTICAL   Date Collected: 10/11/22 10:30
Project    : 380-24070                   Date Received: 10/13/22
Batch No.  : 22J198                       Date Extracted: 10/22/22 13:30
Sample ID  : 380-24070-1                 Date Analyzed: 10/25/22 00:50
Lab Samp ID: 22J198-01                   Dilution Factor: 1
Lab File ID: LJ24047A                    Matrix: WATER
Ext Btch ID: 22DSJ049W                   % Moisture: NA
Calib. Ref.: LJ24023A                    Instrument ID: D5
=====

```

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Diesel	ND	0.026	0.013
Motor Oil	ND	0.052	0.026

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.409	0.525	78	60-130
Hexacosane	0.132	0.131	100	60-130

Notes:

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

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

Sample Amount : 950ml Final Volume : 5ml
Prepared by : DLi Analyzed by : SDeeso

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QC SUMMARIES

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

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=====
Client      : EUROFINS EATON ANALYTICAL      Date Collected: 10/22/22 13:30
Project     : 380-24070                      Date Received: 10/22/22
Batch No.   : 22J198                         Date Extracted: 10/22/22 13:30
Sample ID   : MBLK1W                         Date Analyzed: 10/24/22 19:18
Lab Samp ID: DSJ049WB                       Dilution Factor: 1
Lab File ID: LJ24029A                       Matrix: WATER
Ext Btch ID: 22DSJ049W                      % Moisture: NA
Calib. Ref.: LJ24023A                       Instrument ID: D5
=====

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

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.493	0.500	99	60-130
Hexacosane	0.132	0.125	106	60-130

Notes:
Parameter H-C Range
Diesel C10-C24
Motor Oil C24-C36
Reported ND at RL quantitated per pattern recognition.

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

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL
PROJECT : 380-24070
BATCH NO. : 22J198
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

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=====
MATRIX      : WATER                               % MOISTURE:NA
DILUTION FACTOR: 1                               1
SAMPLE ID   : 380-23784-1                         380-23784-1MSD
LAB SAMPLE ID : 22J162-01                         22J162-01S
LAB FILE ID  : LJ24033A                          LJ24035A
DATE PREPARED : 10/22/22 13:30                   10/22/22 13:30
DATE ANALYZED : 10/24/22 20:32                   10/24/22 21:09
PREP BATCH   : 22DSJ049W                         22DSJ049W
CALIBRATION REF: 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 27, 2022

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

Project Name: RED-HILL Project # 38001111 Job # 380-24070-1
Physis Project ID: 1407003-320

Dear Debbie,


Enclosed are the analytical results for the sample submitted to PHYSIS Environmental Laboratories, Inc. (PHYSIS) on 10/13/2022. 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: 1407003-320

RED-HILL Project # 38001111 Job # 380-24070-1

Total Samples: 1

PHYSIS ID	Sample ID	Description	Date	Time	Matrix	Sample Type
100805	HALAWA WELLS UNITS 1	380-24070-1	10/11/2022	10:30	Samplewater	Not Specified



ABBREVIATIONS and ACRONYMS

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

QUALITY ASSURANCE SUMMARY

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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PHYSIS QUALIFIER CODES

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

CASE NARRATIVE

QUALIFIER NOTES

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

ND

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

BIANALYTICALS

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: 100805-R1	HALAWA WELLS UNITS 1380-2407		Matrix: Samplewater				Sampled:	11-Oct-22 10:30		Received:	13-Oct-22
Disalicylidenepropanediamine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-40002	17-Oct-22	24-Oct-22



Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Sample ID: 100805-R1	HALAWA WELLS UNITS 1380-2407 Matrix: Samplewater						Sampled:	11-Oct-22 10:30	Received:	13-Oct-22	
(d10-Acenaphthene)	EPA 625.1	% Recovery	108	1			Total		O-40002	17-Oct-22	24-Oct-22
(d10-Phenanthrene)	EPA 625.1	% Recovery	106	1			Total		O-40002	17-Oct-22	24-Oct-22
(d12-Chrysene)	EPA 625.1	% Recovery	84	1			Total		O-40002	17-Oct-22	24-Oct-22
(d12-Perylene)	EPA 625.1	% Recovery	88	1			Total		O-40002	17-Oct-22	24-Oct-22
(d8-Naphthalene)	EPA 625.1	% Recovery	111	1			Total		O-40002	17-Oct-22	24-Oct-22
1-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40002	17-Oct-22	24-Oct-22
1-Methylphenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40002	17-Oct-22	24-Oct-22
2,3,5-Trimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40002	17-Oct-22	24-Oct-22
2,6-Dimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40002	17-Oct-22	24-Oct-22
2-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40002	17-Oct-22	24-Oct-22
Acenaphthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40002	17-Oct-22	24-Oct-22
Acenaphthylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40002	17-Oct-22	24-Oct-22
Anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40002	17-Oct-22	24-Oct-22
Benz[a]anthracene	EPA 625.1	µg/L	0.0109	1	0.001	0.005	Total		O-40002	17-Oct-22	24-Oct-22
Benzo[a]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40002	17-Oct-22	24-Oct-22
Benzo[b]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40002	17-Oct-22	24-Oct-22
Benzo[e]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40002	17-Oct-22	24-Oct-22
Benzo[g,h,i]perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40002	17-Oct-22	24-Oct-22
Benzo[k]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40002	17-Oct-22	24-Oct-22
Biphenyl	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40002	17-Oct-22	24-Oct-22
Chrysene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40002	17-Oct-22	24-Oct-22
D benz[a,h]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40002	17-Oct-22	24-Oct-22
D benzo[a,l]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40002	17-Oct-22	24-Oct-22
D benzothiophene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40002	17-Oct-22	24-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-40002	17-Oct-22	24-Oct-22
Fluorene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40002	17-Oct-22	24-Oct-22
Indeno[1,2,3-cd]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40002	17-Oct-22	24-Oct-22
Naphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40002	17-Oct-22	24-Oct-22
Perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40002	17-Oct-22	24-Oct-22
Phenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40002	17-Oct-22	24-Oct-22
Pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40002	17-Oct-22	24-Oct-22

QUALITY CONTROL REPORT

TERRA ENVIRONMENTAL LABORATORIES, INC.

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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: 100804-B1		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:		Received:			
		Method: EPA 625.1			Batch ID: O-40002			Prepared: 17-Oct-22		Analyzed: 24-Oct-22			
Disalicylideneprapanediamin	Total	ND	1	0.05	0.1	µg/L							
Sample ID: 100804-BS1		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:		Received:			
		Method: EPA 625.1			Batch ID: O-40002			Prepared: 17-Oct-22		Analyzed: 24-Oct-22			
Disalicylideneprapanediamin	Total	39.4	1	0.05	0.1	µg/L	50	0	79	50 - 150%	PASS		
Sample ID: 100804-BS2		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:		Received:			
		Method: EPA 625.1			Batch ID: O-40002			Prepared: 17-Oct-22		Analyzed: 24-Oct-22			
Disalicylideneprapanediamin	Total	34.7	1	0.05	0.1	µg/L	50	0	69	50 - 150%	PASS	14	30 PASS

Polynuclear Aromatic Hydrocarbons

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY	PRECISION	QA CODEc	
							LEVEL	RESULT	%	LIMITS	%	LIMITS
Sample ID: 100804-B1		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:		Received:		
		Method: EPA 625.1			Batch ID: O-40002			Prepared: 17-Oct-22		Analyzed: 24-Oct-22		
(d10-Acenaphthene)	Total	108	1				% Recovery	100	108	27 - 133%	PASS	
(d10-Phenanthrene)	Total	99	1				% Recovery	100	99	43 - 129%	PASS	
(d12-Chrysene)	Total	78	1				% Recovery	100	78	52 - 144%	PASS	
(d12-Perylene)	Total	84	1				% Recovery	100	84	36 - 161%	PASS	
(d8-Naphthalene)	Total	82	1				% Recovery	100	82	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 _c
							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: 100804-BS1		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:		Received:		
Method: EPA 625.1		Batch ID: O-40002			Prepared: 17-Oct-22		Analyzed: 24-Oct-22					
(d10-Acenaphthene)	Total	120	1			% Recovery	100	0	120	27 - 133%	PASS	
(d10-Phenanthrene)	Total	107	1			% Recovery	100	0	107	43 - 129%	PASS	
(d12-Chrysene)	Total	77	1			% Recovery	100	0	77	52 - 144%	PASS	
(d12-Perylene)	Total	95	1			% Recovery	100	0	95	36 - 161%	PASS	
(d8-Naphthalene)	Total	115	1			% Recovery	100	0	115	25 - 125%	PASS	
1-Methylnaphthalene	Total	0.519	1	0.001	0.005	µg/L	0.5	0	104	31 - 128%	PASS	
1-Methylphenanthrene	Total	0.482	1	0.001	0.005	µg/L	0.5	0	96	66 - 127%	PASS	
2,3,5-Trimethylnaphthalene	Total	0.51	1	0.001	0.005	µg/L	0.5	0	102	55 - 122%	PASS	
2,6-Dimethylnaphthalene	Total	0.508	1	0.001	0.005	µg/L	0.5	0	102	48 - 120%	PASS	
2-Methylnaphthalene	Total	0.526	1	0.001	0.005	µg/L	0.5	0	105	47 - 130%	PASS	
Acenaphthene	Total	0.523	1	0.001	0.005	µg/L	0.5	0	105	53 - 131%	PASS	
Acenaphthylene	Total	0.499	1	0.001	0.005	µg/L	0.5	0	100	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	0.632	1	0.001	0.005	µg/L	0.5	0	126	55 - 145%	PASS	
Benzo[a]pyrene	Total	0.478	1	0.001	0.005	µg/L	0.5	0	96	51 - 143%	PASS	
Benzo[b]fluoranthene	Total	0.386	1	0.001	0.005	µg/L	0.5	0	77	46 - 165%	PASS	
Benzo[e]pyrene	Total	0.465	1	0.001	0.005	µg/L	0.5	0	93	42 - 152%	PASS	
Benzo[g,h,i]perylene	Total	0.486	1	0.001	0.005	µg/L	0.5	0	97	63 - 133%	PASS	
Benzo[k]fluoranthene	Total	0.425	1	0.001	0.005	µg/L	0.5	0	85	56 - 145%	PASS	
Biphenyl	Total	0.525	1	0.001	0.005	µg/L	0.5	0	105	56 - 119%	PASS	
Chrysene	Total	0.486	1	0.001	0.005	µg/L	0.5	0	97	56 - 141%	PASS	
Dibenz[a,h]anthracene	Total	0.451	1	0.001	0.005	µg/L	0.5	0	90	55 - 150%	PASS	
Dibenzo[a,l]pyrene	Total	0.369	1	0.001	0.005	µg/L	0.5	0	74	50 - 150%	PASS	
Dibenzothiophene	Total	0.515	1	0.001	0.005	µg/L	0.5	0	103	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	0.488	1	0.001	0.005	µg/L	0.5	0	98	60 - 146%	PASS		
Fluorene	Total	0.51	1	0.001	0.005	µg/L	0.5	0	102	58 - 131%	PASS		
Indeno[1,2,3-cd]pyrene	Total	0.498	1	0.001	0.005	µg/L	0.5	0	100	50 - 151%	PASS		
Naphthalene	Total	0.534	1	0.001	0.005	µg/L	0.5	0	107	41 - 126%	PASS		
Perylene	Total	0.471	1	0.001	0.005	µg/L	0.5	0	94	48 - 141%	PASS		
Phenanthrene	Total	0.527	1	0.001	0.005	µg/L	0.5	0	105	67 - 127%	PASS		
Pyrene	Total	0.48	1	0.001	0.005	µg/L	0.5	0	96	54 - 156%	PASS		

Polynuclear Aromatic Hydrocarbons

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY		PRECISION		QA CODEc		
							LEVEL	RESULT	%	LIMITS	%	LIMITS			
Sample ID: 100804-BS2		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:			Received:				
		Method: EPA 625.1			Batch ID: O-40002			Prepared: 17-Oct-22			Analyzed: 24-Oct-22				
(d10-Acenaphthene)	Total	119	1				% Recovery	100	0	119	27 - 133%	PASS	1	30	PASS
(d10-Phenanthrene)	Total	107	1				% Recovery	100	0	107	43 - 129%	PASS	0	30	PASS
(d12-Chrysene)	Total	102	1				% Recovery	100	0	102	52 - 144%	PASS	28	30	PASS
(d12-Perylene)	Total	96	1				% Recovery	100	0	96	36 - 161%	PASS	1	30	PASS
(d8-Naphthalene)	Total	121	1				% Recovery	100	0	121	25 - 125%	PASS	5	30	PASS
1-Methylnaphthalene	Total	0.492	1	0.001	0.005	µg/L		0.5	0	98	31 - 128%	PASS	6	30	PASS
1-Methylphenanthrene	Total	0.621	1	0.001	0.005	µg/L		0.5	0	124	66 - 127%	PASS	25	30	PASS
2,3,5-Trimethylnaphthalene	Total	0.507	1	0.001	0.005	µg/L		0.5	0	101	55 - 122%	PASS	1	30	PASS
2,6-Dimethylnaphthalene	Total	0.491	1	0.001	0.005	µg/L		0.5	0	98	48 - 120%	PASS	4	30	PASS
2-Methylnaphthalene	Total	0.502	1	0.001	0.005	µg/L		0.5	0	100	47 - 130%	PASS	5	30	PASS
Acenaphthene	Total	0.534	1	0.001	0.005	µg/L		0.5	0	107	53 - 131%	PASS	2	30	PASS
Acenaphthylene	Total	0.491	1	0.001	0.005	µg/L		0.5	0	98	43 - 140%	PASS	2	30	PASS
Anthracene	Total	0.518	1	0.001	0.005	µg/L		0.5	0	104	58 - 135%	PASS	3	30	PASS
Benz[a]anthracene	Total	0.658	1	0.001	0.005	µg/L		0.5	0	132	55 - 145%	PASS	5	30	PASS
Benzo[a]pyrene	Total	0.479	1	0.001	0.005	µg/L		0.5	0	96	51 - 143%	PASS	0	30	PASS
Benzo[b]fluoranthene	Total	0.461	1	0.001	0.005	µg/L		0.5	0	92	46 - 165%	PASS	18	30	PASS
Benzo[e]pyrene	Total	0.472	1	0.001	0.005	µg/L		0.5	0	94	42 - 152%	PASS	1	30	PASS
Benzo[g,h,i]perylene	Total	0.491	1	0.001	0.005	µg/L		0.5	0	98	63 - 133%	PASS	1	30	PASS
Benzo[k]fluoranthene	Total	0.536	1	0.001	0.005	µg/L		0.5	0	107	56 - 145%	PASS	23	30	PASS
Biphenyl	Total	0.514	1	0.001	0.005	µg/L		0.5	0	103	56 - 119%	PASS	2	30	PASS
Chrysene	Total	0.493	1	0.001	0.005	µg/L		0.5	0	99	56 - 141%	PASS	2	30	PASS
Dibenz[a,h]anthracene	Total	0.454	1	0.001	0.005	µg/L		0.5	0	91	55 - 150%	PASS	1	30	PASS
Dibenzo[a,l]pyrene	Total	0.491	1	0.001	0.005	µg/L		0.5	0	98	50 - 150%	PASS	28	30	PASS
Dibenzothiophene	Total	0.521	1	0.001	0.005	µg/L		0.5	0	104	75 - 113%	PASS	1	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	0.638	1	0.001	0.005	µg/L	0.5	0	128	60 - 146%	PASS	27	30	PASS
Fluorene	Total	0.525	1	0.001	0.005	µg/L	0.5	0	105	58 - 131%	PASS	3	30	PASS
Indeno[1,2,3-cd]pyrene	Total	0.499	1	0.001	0.005	µg/L	0.5	0	100	50 - 151%	PASS	0	30	PASS
Naphthalene	Total	0.509	1	0.001	0.005	µg/L	0.5	0	102	41 - 126%	PASS	5	30	PASS
Perylene	Total	0.475	1	0.001	0.005	µg/L	0.5	0	95	48 - 141%	PASS	1	30	PASS
Phenanthrene	Total	0.539	1	0.001	0.005	µg/L	0.5	0	108	67 - 127%	PASS	3	30	PASS
Pyrene	Total	0.65	1	0.001	0.005	µg/L	0.5	0	130	54 - 156%	PASS	30	30	PASS

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PHYSIS

TENTATIVELY

IDENTIFIED COMPOUNDS

ENVIRONMENTAL LABORATORIES, INC.

Innovative Solutions for Nature

Sample ID: 100805

RT	Area Pct	Concentration (ng/L)	Library/ID	Cas Number	Match Qual
32.3428	3.8071	1111	Anthracene-D10-	1719-06-8	96
29.3399	1.5047	439	Benzoic acid, 2-ethylhexyl ester	5444-75-7	99
25.0494	0.4625	135	2,2,4-Trimethyl-1,3-pentanediol diisobutyrate	6846-50-0	97

Concentration estimated using the response for Anthracene-d10

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Sample ID: Lab Blank Batch O-40002

RT	Area Pct	Concentration (ng/L)	Library/ID	Cas Number	Match Qual
32.3456	6.8762	1111	Anthracene-D10	1517-22-2	96
29.3426	4.0589	656	Benzoic acid, 2-ethylhexyl ester	5444-75-7	99

Concentration estimated using the response for Anthracene-d10

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PERFORMANCE CHAIN OF CUSTODY

TERRA ENVIRONMENTAL LABORATORIES, INC. AURA

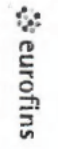
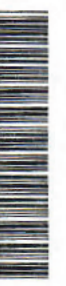
Innovative Solutions for Nature

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Monrovia, CA (Suite 100)

750 Royal Oaks Drive Suite 100
Monrovia, CA 91016
Phone: 626-388-1100

Chain of Custody Record



Environmental Testing
America

Client Information (Sub Contract Lab)		Sampler:	Lab Pk#:	Arada, Rachelle	Carrier/Tracking No.:	COC No.:
Shipping/Receiving		Phone:	E-Mail:	Rachelle.Arada@et.eurofins.com	State of Origin:	380-24180.1
Company: Physics Environmental Laboratories		Address:	1904 Wright Circle,		City:	Anaheim
State, Zip:		CA, 92806	PO #:		Project #:	38001111
Project Name:		RED-HILL	Site:	Honolulu BWS Sites	Sample Identification - Client ID (Lab ID)	HALAWA WELLS UNITS 1 (380-24070-1)
Due Date Requested:		10/26/2022	TAT Requested (days):		Sample Date	10/11/22
Sample Time		10:30	Sample Type (C=Comp, G=grab)	Water	Matrix (Mercury, Lead, Cadmium, Arsenic, Ascid)	
Field Filtered Sample (Yes or No)		<input checked="" type="checkbox"/>	Perform MS/MSD (Yes or No)	SUB (626 PAH Physis LL (EAL) + TICs) / 626 PAH Physis LL (EAL) + TICs	Preservation Code:	Water
Total Number of containers		2	Special Instructions/Note:	See Attached Instructions		

Possible Hazard Identification		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	
Unconfirmed		Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Deliverable Requested: I, II, III, IV, Other (specify)		Primary Deliverable Rank: 2	
Empty Kit Relinquished by:		Date:	Time:
Relinquished by: <i>WJ</i>		Date/Time: 10/13/22	13:10
Relinquished by:		Date/Time:	Company:
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Custody Seal No.:	

Project Iteration ID: 1407003-320
 Client Name: Eurofins Eaton Analytical
 Project Name: RED-HILL Project # 38001111 Job # 380-24070-1
 COC Page Number: 2 of 2
 Bottle Label Color: NA

Sample Receipt Summary

Receiving Info

- Initials Received By: RGH
- Date Received: 10/13/22
- Time Received: 1310
- Client Name: Eurofins
- Courier Information: (Please circle)
 - Client
 - UPS
 - Area Fast
 - DRS
 - FedEx
 - GSO/GLS
 - Ontrac
 - PAMS
 - PHYSIS Driver:
 - Start Time: _____
 - End Time: _____
 - Total Mileage: _____
 - Number of Pickups: _____
- Container Information: (Please put the # of containers or circle none)
 - 2 Cooler
 - Styrofoam Cooler
 - Boxes
 - None
 - Carboy(s)
 - Carboy Trash Can(s)
 - Carboy Cap(s)
 - Other _____
- What type of ice was used: (Please circle any that apply)
 - Wet Ice
 - Blue Ice
 - Dry Ice
 - Water
 - None
- Randomly Selected Samples Temperature (°C): 5.3
 Used I/R Thermometer # 1-2

Inspection Info

- Initials Inspected By: RGH

Sample Integrity Upon Receipt:

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

Notes:

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	Lab PM	Carrier Tracking No(s)	COC No			
Client Contact Dr. Ron Fenstermacher			Phone	Arada, Rachele	380-9757-2757,3	Page 3 of 3			
Company City & County of Honolulu			FWSID	E-Mail Rachele.Arada@et.eurofinsus.com	State of Origin	Job #			
Address 630 South Beretania Street Chemistry Lab			Analysis Requested			Preservation Codes: A - MCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)			
City Honolulu			Due Date Requested:	SUBCONTRACT - 825 PAH Phym L1 (EAL) + TICs SUBCONTRACT - 8015 Gas (Purgeable) L1 (EAL) SUBCONTRACT - 8015 Diesel L1 (EAL) and Motor Oil 525.2_PREC - (MCD) 525plus Plus TICs SUBCONTRACT - 8015 Gas (Purgeable) L1 (EAL)	Total Number of containers				
State, Zip HI, 96843			TAT Requested (days):						
Phone: 808-748-5091(Tel)			Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No						
Email RFENSTEMACHER@hbws.org			PO # C20525101 exp 05312023						
Project Name RED-HILL/HBWS Sites Event Desc: RUSH Weekly Red Hill			WFO #						
Site Hawaii			Project # 38001111	SSOW#		Other:			
Sample Identification			Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=organic, BT=biota, A=air)	Field Filtered Sample (Yes or No)	Preservation Code:	Special Instructions/Note:
HALAWA WELLS UNITS 1&2 L1L			2022-10-11	1030	G	Water	no	R R RA RA RA	10
MONA WELLS						Water			
TB HALAWA WELLS UNITS 1&2 L1L						Water			
TB MONA WELLS PUMPS 4&5 (200)						Water			
TB MONA WELLS						Water			
TB HALAWA WELLS UNITS 1&2 L1L						Water		2	2
TB MONA WELLS						Water			
									Blank temp 6°C
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 2022-10-11 1200	Company BWS	Received by Mark Urcyria			Date/Time 10/12/22 1000	Company FEA
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					



380-24070 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

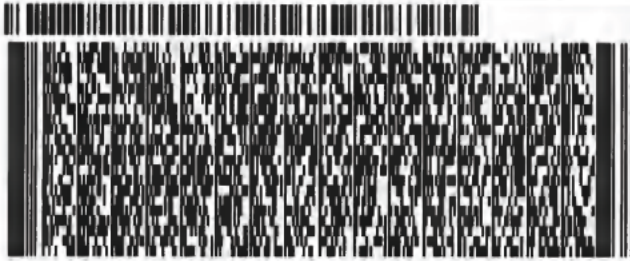
SHIP DATE: 11OCT22
ACTWGT: 75.00 LB
CAD: 100205419/NET4530

BILL RECIPIENT

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

581J11AC5FFE2D

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

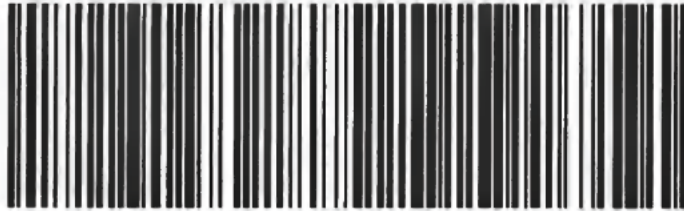


WED - 12 OCT 10:30A
PRIORITY OVERNIGHT

TRK# 7701 7719 7634
0201

WZ WHPA

91016
CA-US BUR

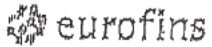


After printing this label:

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 Service Guide. Written claims must be filed within strict time limits, see current FedEx Service Guide.



Eaton Analytical

INTERNAL CHAIN OF CUSTODY RECORD

EPA Folder Number: _____

SAMPLE TEMP RECEIVED!
Note: If sampler is out of temperature range, let the ASM know. ASM will determine whether to proceed with analysis or not.
SAMPLES REC'D DAY OF COLLECTION? Yes / No

IR Gun ID = 630A (Observation = 5.1 °C) (Corr. Factor 0.1 °C) (Final = 5.0 °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:

- 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 816.4, HAA(8261,862), 806, SPME, @OH, 832LCMS, 858, 838, Anatoxin, LCMS methods using 40 ml vials, International clients: International clients: LCMS methods using 40 ml vials

Samp ID	Bottle #	None/<8 mm	>8mm	Test	Samp ID	Bottle #	None/<8 mm	>8mm	Test	Samp ID	Bottle #	None/<8 mm	>8mm	Test	Samp ID	Bottle #	None/<8 mm	>8mm	Test	

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

RECEIVED BY: <u>Mark Urcutia</u>	SIGNATURE: <u>[Signature]</u>	PRINT NAME: <u>Mark Urcutia</u>	COMPANY/TITLE: <u>Eurofins Eaton Analytical</u>	DATE: <u>10/12/22</u>	TIME: <u>1000</u>
SAMPLES CHECKED AGAINST COC BY: <u>[Signature]</u>	SIGNATURE: <u>[Signature]</u>	PRINT NAME: <u>S. REITNER</u>	COMPANY/TITLE: <u>Eurofins Eaton Analytical</u>	DATE: <u>10/12/2022</u>	TIME: <u>15:12</u>

Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-24070-1

Login Number: 24070

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	