

ANALYTICAL REPORT

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

Laboratory Job ID: 380-15929-1
Client Project/Site: RED-HILL
Sampling Event: RUSH Weekly Red Hill

For:
City & County of Honolulu
630 South Beretania Street
Public Service Bldg. Room 308
Honolulu, Hawaii 96843

Attn: Mr. Erwin Kawata



Authorized for release by:
10/18/2022 10:06:22 PM

Rachelle Arada, Manager of Project Management
(626)386-1106
Rachelle.Arada@et.eurofinsus.com

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Results relate only to the items tested and the sample(s) as received by the laboratory.

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)



Rachelle Arada
Manager of Project Management
10/18/2022 10:06:22 PM





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Definitions/Glossary

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

Job ID: 380-15929-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD 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: 380-15929-1

Job ID: 380-15929-1

Laboratory: Eurofins Eaton Monrovia

Narrative

**Job Narrative
380-15929-1**

Comments

No additional comments.

Receipt

The sample was received on 8/11/2022 10:10 AM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 4.7° C.

GC/MS Semi VOA

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

Subcontract non-Sister

See attached subcontract report.

Organic Prep

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

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Detection Summary

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

Job ID: 380-15929-1

Client Sample ID: HALAWA WELLS UNIT 1 (331-023)
PWSID Number: HI0000331

Lab Sample ID: 380-15929-1

No Detections.

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This Detection Summary does not include radiochemical test results.

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Client Sample Results

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

Job ID: 380-15929-1

Client Sample ID: HALAWA WELLS UNIT 1 (331-023)

Lab Sample ID: 380-15929-1

Date Collected: 08/10/22 09:35

Matrix: Drinking Water

Date Received: 08/11/22 10:10

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		08/23/22 13:46	08/24/22 21:20	1
2,4'-DDE	ND		0.098	ug/L		08/23/22 13:46	08/24/22 21:20	1
2,4'-DDT	ND		0.098	ug/L		08/23/22 13:46	08/24/22 21:20	1
2,4-Dinitrotoluene	ND		0.098	ug/L		08/23/22 13:46	08/24/22 21:20	1
2,6-Dinitrotoluene	ND		0.098	ug/L		08/23/22 13:46	08/24/22 21:20	1
4,4'-DDD	ND		0.098	ug/L		08/23/22 13:46	08/24/22 21:20	1
4,4'-DDE	ND		0.098	ug/L		08/23/22 13:46	08/24/22 21:20	1
4,4'-DDT	ND		0.098	ug/L		08/23/22 13:46	08/24/22 21:20	1
Acenaphthene	ND		0.098	ug/L		08/23/22 13:46	08/24/22 21:20	1
Acenaphthylene	ND		0.098	ug/L		08/23/22 13:46	08/24/22 21:20	1
Acetochlor	ND		0.098	ug/L		08/23/22 13:46	08/24/22 21:20	1
Alachlor	ND		0.049	ug/L		08/23/22 13:46	08/24/22 21:20	1
alpha-BHC	ND		0.098	ug/L		08/23/22 13:46	08/24/22 21:20	1
alpha-Chlordane	ND		0.049	ug/L		08/23/22 13:46	08/24/22 21:20	1
Anthracene	ND		0.020	ug/L		08/23/22 13:46	08/24/22 21:20	1
Atrazine	ND		0.049	ug/L		08/23/22 13:46	08/24/22 21:20	1
Benz(a)anthracene	ND		0.049	ug/L		08/23/22 13:46	08/24/22 21:20	1
Benzo[a]pyrene	ND		0.020	ug/L		08/23/22 13:46	08/24/22 21:20	1
Benzo[b]fluoranthene	ND		0.020	ug/L		08/23/22 13:46	08/24/22 21:20	1
Benzo[g,h,i]perylene	ND		0.049	ug/L		08/23/22 13:46	08/24/22 21:20	1
Benzo[k]fluoranthene	ND		0.020	ug/L		08/23/22 13:46	08/24/22 21:20	1
beta-BHC	ND		0.098	ug/L		08/23/22 13:46	08/24/22 21:20	1
Bromacil	ND	+	0.098	ug/L		08/23/22 13:46	08/24/22 21:20	1
Butachlor	ND		0.049	ug/L		08/23/22 13:46	08/24/22 21:20	1
Butylbenzylphthalate	ND		0.49	ug/L		08/23/22 13:46	08/24/22 21:20	1
Caffeine	ND		0.049	ug/L		08/23/22 13:46	08/24/22 21:20	1
Chlorobenzilate	ND		0.098	ug/L		08/23/22 13:46	08/24/22 21:20	1
Chloroneb	ND		0.098	ug/L		08/23/22 13:46	08/24/22 21:20	1
Chlorothalonil (Draconil, Bravo)	ND		0.098	ug/L		08/23/22 13:46	08/24/22 21:20	1
Chlorpyrifos	ND		0.049	ug/L		08/23/22 13:46	08/24/22 21:20	1
Chrysene	ND		0.020	ug/L		08/23/22 13:46	08/24/22 21:20	1
delta-BHC	ND		0.098	ug/L		08/23/22 13:46	08/24/22 21:20	1
Di(2-ethylhexyl)adipate	ND		0.59	ug/L		08/23/22 13:46	08/24/22 21:20	1
Bis(2-ethylhexyl) phthalate	ND		0.59	ug/L		08/23/22 13:46	08/24/22 21:20	1
Diazinon (Qualitative)	ND		0.098	ug/L		08/23/22 13:46	08/24/22 21:20	1
Dibenz(a,h)anthracene	ND		0.049	ug/L		08/23/22 13:46	08/24/22 21:20	1
Diclorvos (DDVP)	ND		0.049	ug/L		08/23/22 13:46	08/24/22 21:20	1
Dieldrin	ND		0.20	ug/L		08/23/22 13:46	08/24/22 21:20	1
Diethylphthalate	ND		0.49	ug/L		08/23/22 13:46	08/24/22 21:20	1
Dimethoate	ND		0.098	ug/L		08/23/22 13:46	08/24/22 21:20	1
Dimethylphthalate	ND		0.49	ug/L		08/23/22 13:46	08/24/22 21:20	1
Di-n-butyl phthalate	ND		0.98	ug/L		08/23/22 13:46	08/24/22 21:20	1
Di-n-octyl phthalate	ND		0.098	ug/L		08/23/22 13:46	08/24/22 21:20	1
Endosulfan I (Alpha)	ND		0.098	ug/L		08/23/22 13:46	08/24/22 21:20	1
Endosulfan II (Beta)	ND		0.098	ug/L		08/23/22 13:46	08/24/22 21:20	1
Endosulfan sulfate	ND		0.098	ug/L		08/23/22 13:46	08/24/22 21:20	1
Endrin	ND		0.098	ug/L		08/23/22 13:46	08/24/22 21:20	1
Endrin aldehyde	ND		0.098	ug/L		08/23/22 13:46	08/24/22 21:20	1
EPTC	ND		0.098	ug/L		08/23/22 13:46	08/24/22 21:20	1

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Client Sample Results

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

Job ID: 380-15929-1

Client Sample ID: HALAWA WELLS UNIT 1 (331-023)

Lab Sample ID: 380-15929-1

Date Collected: 08/10/22 09:35

Matrix: Drinking Water

Date Received: 08/11/22 10:10

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoranthene	ND		0.098	ug/L		08/23/22 13:46	08/24/22 21:20	1
Fluorene	ND		0.049	ug/L		08/23/22 13:46	08/24/22 21:20	1
gamma-Chlordane	ND		0.049	ug/L		08/23/22 13:46	08/24/22 21:20	1
Heptachlor	ND		0.039	ug/L		08/23/22 13:46	08/24/22 21:20	1
Heptachlor epoxide (isomer B)	ND		0.049	ug/L		08/23/22 13:46	08/24/22 21:20	1
Hexachlorobenzene	ND		0.049	ug/L		08/23/22 13:46	08/24/22 21:20	1
Hexachlorocyclopentadiene	ND		0.049	ug/L		08/23/22 13:46	08/24/22 21:20	1
Indeno[1,2,3-cd]pyrene	ND		0.049	ug/L		08/23/22 13:46	08/24/22 21:20	1
Isophorone	ND		0.49	ug/L		08/23/22 13:46	08/24/22 21:20	1
Lindane	ND		0.039	ug/L		08/23/22 13:46	08/24/22 21:20	1
Malathion	ND		0.098	ug/L		08/23/22 13:46	08/24/22 21:20	1
Methoxychlor	ND		0.098	ug/L		08/23/22 13:46	08/24/22 21:20	1
Metolachlor	ND		0.049	ug/L		08/23/22 13:46	08/24/22 21:20	1
Metribuzin	ND		0.049	ug/L		08/23/22 13:46	08/24/22 21:20	1
Molinate	ND		0.098	ug/L		08/23/22 13:46	08/24/22 21:20	1
Naphthalene	ND		0.29	ug/L		08/23/22 13:46	08/24/22 21:20	1
Parathion	ND		0.098	ug/L		08/23/22 13:46	08/24/22 21:20	1
Pendimethalin (Penoxaline)	ND		0.098	ug/L		08/23/22 13:46	08/24/22 21:20	1
Total Permethrin (mixed isomers)	ND		0.20	ug/L		08/23/22 13:46	08/24/22 21:20	1
Phenanthrene	ND		0.039	ug/L		08/23/22 13:46	08/24/22 21:20	1
Propachlor	ND		0.049	ug/L		08/23/22 13:46	08/24/22 21:20	1
Pyrene	ND		0.049	ug/L		08/23/22 13:46	08/24/22 21:20	1
Simazine	ND		0.049	ug/L		08/23/22 13:46	08/24/22 21:20	1
Terbacil	ND		0.098	ug/L		08/23/22 13:46	08/24/22 21:20	1
Terbuthylazine	ND		0.098	ug/L		08/23/22 13:46	08/24/22 21:20	1
Thiobencarb	ND		0.20	ug/L		08/23/22 13:46	08/24/22 21:20	1
trans-Nonachlor	ND		0.049	ug/L		08/23/22 13:46	08/24/22 21:20	1
Trifluralin	ND		0.098	ug/L		08/23/22 13:46	08/24/22 21:20	1

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Octadecane	0.57	T J N	ug/L		5.19	593-45-3	08/23/22 13:46	08/24/22 21:20	1
Hexazinone	0.13		ug/L		7.78	51235-04-2	08/23/22 13:46	08/24/22 21:20	1
Phthalic acid, hept-4-yl undecyl ester	0.71	T J N	ug/L		14.30	1000356-79-2	08/23/22 13:46	08/24/22 21:20	1
tri(2-Ethylhexyl) trimellitate	3.0	T J N	ug/L		15.02	3319-31-1	08/23/22 13:46	08/24/22 21:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	93		70 - 130	08/23/22 13:46	08/24/22 21:20	1
Triphenylphosphate	97		70 - 130	08/23/22 13:46	08/24/22 21:20	1
Perylene-d12	97		70 - 130	08/23/22 13:46	08/24/22 21:20	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		08/15/22 00:00	08/21/22 11:35	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/21/22 11:35	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/21/22 11:35	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/21/22 11:35	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/21/22 11:35	1
Acenaphthene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/21/22 11:35	1
Acenaphthylene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/21/22 11:35	1

Eurofins Eaton Monrovia

Client Sample Results

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

Job ID: 380-15929-1

Client Sample ID: HALAWA WELLS UNIT 1 (331-023)

Lab Sample ID: 380-15929-1

Date Collected: 08/10/22 09:35

Matrix: Drinking Water

Date Received: 08/11/22 10:10

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
Anthracene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/21/22 11:35	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/21/22 11:35	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/21/22 11:35	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/21/22 11:35	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/21/22 11:35	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/21/22 11:35	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/21/22 11:35	1
Biphenyl	ND		0.005	0.001	µg/L		08/15/22 00:00	08/21/22 11:35	1
Chrysene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/21/22 11:35	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/21/22 11:35	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/21/22 11:35	1
Dibenzothiophene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/21/22 11:35	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		08/15/22 00:00	08/21/22 11:35	1
Fluoranthene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/21/22 11:35	1
Fluorene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/21/22 11:35	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/21/22 11:35	1
Naphthalene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/21/22 11:35	1
Perylene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/21/22 11:35	1
Phenanthrene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/21/22 11:35	1
Pyrene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/21/22 11:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	83		45 - 118	08/15/22 00:00	08/21/22 11:35	1
(d10-Phenanthrene)	90		56 - 123	08/15/22 00:00	08/21/22 11:35	1
(d12-Chrysene)	91		36 - 142	08/15/22 00:00	08/21/22 11:35	1
(d12-Perylene)	80		36 - 161	08/15/22 00:00	08/21/22 11:35	1
(d8-Naphthalene)	77		20 - 112	08/15/22 00:00	08/21/22 11:35	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GASOLINE	ND	U	0.02		mg/L			08/12/22 16:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
BROMOFLUOROBENZENE	90		60 - 140		08/12/22 16:49	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DIESEL	ND	U	0.024		mg/L			08/15/22 18:26	1
MOTOR OIL	ND	U	0.047		mg/L			08/15/22 18:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
BROMOBENZENE	61		60 - 130		08/15/22 18:26	1
HEXACOSANE	93		60 - 130		08/15/22 18:26	1

Action Limit Summary

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

Job ID: 380-15929-1

Client Sample ID: HALAWA WELLS UNIT 1 (331-023)

Lab Sample ID: 380-15929-1

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

Surrogate Summary

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

Job ID: 380-15929-1

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)
380-15929-1	HALAWA WELLS UNIT 1 (331-0)	93	97	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)
380-11467-F-1-A MS	Matrix Spike	95	106	96
380-15905-F-1-A DU	Duplicate	94	106	90
LCS 380-14452/3-A	Lab Control Sample	93	106	97
LCS 380-14452/4-A	Lab Control Sample Dup	95	104	98
MB 380-14452/1-A	Method Blank	94	111	92
MRL 380-14452/2-A	Lab Control Sample	92	107	95

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: Drinking Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)				
		ANT (45-118)	CRY (36-142)	NPT (20-112)	PHN (56-123)	PRY (36-161)
380-15929-1	HALAWA WELLS UNIT 1 (331-0)	83	91	77	90	80

Surrogate Legend
 ANT = (d10-Acenaphthene)
 CRY = (d12-Chrysene)
 NPT = (d8-Naphthalene)
 PHN = (d10-Phenanthrene)
 PRY = (d12-Perylene)

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

Matrix: water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)				
		ANT (65-113)	CRY (60-139)	NPT (44-119)	PHN (80-111)	PRY (36-161)
99172-B1	Method Blank	92	92	88	93	88
99172-BS1	Lab Control Sample	87	84	81	91	86
99172-BS2	Lab Control Sample Dup	92	88	90	98	95

Surrogate Legend
 ANT = (d10-Acenaphthene)
 CRY = (d12-Chrysene)

Eurofins Eaton Monrovia

Surrogate Summary

Client: City & County of Honolulu

Job ID: 380-15929-1

Project/Site: RED-HILL

NPT = (d8-Naphthalene)

PHN = (d10-Phenanthrene)

PRY = (d12-Perylene)

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

Matrix: Drinking Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB (60-140)
380-15929-1	HALAWA WELLS UNIT 1 (331-0)	90

Surrogate Legend

BFB = BROMOFLUOROBENZENE

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

Matrix: WATER

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB
22VG39H05B	Method Blank	

Surrogate Legend

BFB = BROMOFLUOROBENZENE

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

Matrix: WATER

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB (70-130)
22VG39H05C	LCD	109
22VG39H05L	Lab Control Sample	109

Surrogate Legend

BFB = BROMOFLUOROBENZENE

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

Matrix: Drinking Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BB (60-130)	XACOSAI (60-130)
380-15929-1	HALAWA WELLS UNIT 1 (331-0)	61	93

Surrogate Legend

BB = BROMOBENZENE

HEXACOSANE = HEXACOSANE

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

Matrix: WATER

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BB	XACOSAI
22DSH022WB	Method Blank		

Surrogate Legend

BB = BROMOBENZENE

HEXACOSANE = HEXACOSANE

Eurofins Eaton Monrovia

Surrogate Summary

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

Job ID: 380-15929-1

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

Matrix: WATER

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BB (60-130)	HEXACOSANE (60-130)
22DSH022WL	Lab Control Sample	82	100

Surrogate Legend

BB = BROMOBENZENE

HEXACOSANE = HEXACOSANE

QC Sample Results

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

Job ID: 380-15929-1

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

Lab Sample ID: MB 380-14452/1-A
Matrix: Water
Analysis Batch: 14796

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 14452

Analyte	MB	MB	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
2,4'-DDD	ND		0.098	ug/L		08/23/22 13:46	08/24/22 17:34	1
2,4'-DDE	ND		0.098	ug/L		08/23/22 13:46	08/24/22 17:34	1
2,4'-DDT	ND		0.098	ug/L		08/23/22 13:46	08/24/22 17:34	1
2,4-Dinitrotoluene	ND		0.098	ug/L		08/23/22 13:46	08/24/22 17:34	1
2,6-Dinitrotoluene	ND		0.098	ug/L		08/23/22 13:46	08/24/22 17:34	1
4,4'-DDD	ND		0.098	ug/L		08/23/22 13:46	08/24/22 17:34	1
4,4'-DDE	ND		0.098	ug/L		08/23/22 13:46	08/24/22 17:34	1
4,4'-DDT	ND		0.098	ug/L		08/23/22 13:46	08/24/22 17:34	1
Acenaphthene	ND		0.098	ug/L		08/23/22 13:46	08/24/22 17:34	1
Acenaphthylene	ND		0.098	ug/L		08/23/22 13:46	08/24/22 17:34	1
Acetochlor	ND		0.098	ug/L		08/23/22 13:46	08/24/22 17:34	1
Alachlor	ND		0.049	ug/L		08/23/22 13:46	08/24/22 17:34	1
alpha-BHC	ND		0.098	ug/L		08/23/22 13:46	08/24/22 17:34	1
alpha-Chlordane	ND		0.049	ug/L		08/23/22 13:46	08/24/22 17:34	1
Anthracene	ND		0.020	ug/L		08/23/22 13:46	08/24/22 17:34	1
Atrazine	ND		0.049	ug/L		08/23/22 13:46	08/24/22 17:34	1
Benz(a)anthracene	ND		0.049	ug/L		08/23/22 13:46	08/24/22 17:34	1
Benzo[a]pyrene	ND		0.020	ug/L		08/23/22 13:46	08/24/22 17:34	1
Benzo[b]fluoranthene	ND		0.020	ug/L		08/23/22 13:46	08/24/22 17:34	1
Benzo[g,h,i]perylene	ND		0.049	ug/L		08/23/22 13:46	08/24/22 17:34	1
Benzo[k]fluoranthene	ND		0.020	ug/L		08/23/22 13:46	08/24/22 17:34	1
beta-BHC	ND		0.098	ug/L		08/23/22 13:46	08/24/22 17:34	1
Bromacil	ND		0.098	ug/L		08/23/22 13:46	08/24/22 17:34	1
Butachlor	ND		0.049	ug/L		08/23/22 13:46	08/24/22 17:34	1
Butylbenzylphthalate	ND		0.49	ug/L		08/23/22 13:46	08/24/22 17:34	1
Caffeine	ND		0.049	ug/L		08/23/22 13:46	08/24/22 17:34	1
Chlorobenzilate	ND		0.098	ug/L		08/23/22 13:46	08/24/22 17:34	1
Chloroneb	ND		0.098	ug/L		08/23/22 13:46	08/24/22 17:34	1
Chlorothalonil (Draconil, Bravo)	ND		0.098	ug/L		08/23/22 13:46	08/24/22 17:34	1
Chlorpyrifos	ND		0.049	ug/L		08/23/22 13:46	08/24/22 17:34	1
Chrysene	ND		0.020	ug/L		08/23/22 13:46	08/24/22 17:34	1
delta-BHC	ND		0.098	ug/L		08/23/22 13:46	08/24/22 17:34	1
Di(2-ethylhexyl)adipate	ND		0.59	ug/L		08/23/22 13:46	08/24/22 17:34	1
Bis(2-ethylhexyl) phthalate	ND		0.59	ug/L		08/23/22 13:46	08/24/22 17:34	1
Diazinon (Qualitative)	ND		0.098	ug/L		08/23/22 13:46	08/24/22 17:34	1
Dibenz(a,h)anthracene	ND		0.049	ug/L		08/23/22 13:46	08/24/22 17:34	1
Diclorvos (DDVP)	ND		0.049	ug/L		08/23/22 13:46	08/24/22 17:34	1
Dieldrin	ND		0.20	ug/L		08/23/22 13:46	08/24/22 17:34	1
Diethylphthalate	ND		0.49	ug/L		08/23/22 13:46	08/24/22 17:34	1
Dimethoate	ND		0.098	ug/L		08/23/22 13:46	08/24/22 17:34	1
Dimethylphthalate	ND		0.49	ug/L		08/23/22 13:46	08/24/22 17:34	1
Di-n-butyl phthalate	ND		0.98	ug/L		08/23/22 13:46	08/24/22 17:34	1
Di-n-octyl phthalate	ND		0.098	ug/L		08/23/22 13:46	08/24/22 17:34	1
Endosulfan I (Alpha)	ND		0.098	ug/L		08/23/22 13:46	08/24/22 17:34	1
Endosulfan II (Beta)	ND		0.098	ug/L		08/23/22 13:46	08/24/22 17:34	1
Endosulfan sulfate	ND		0.098	ug/L		08/23/22 13:46	08/24/22 17:34	1
Endrin	ND		0.098	ug/L		08/23/22 13:46	08/24/22 17:34	1
Endrin aldehyde	ND		0.098	ug/L		08/23/22 13:46	08/24/22 17:34	1

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QC Sample Results

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

Job ID: 380-15929-1

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

Lab Sample ID: MB 380-14452/1-A
Matrix: Water
Analysis Batch: 14796

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 14452

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
EPTC	ND		0.098	ug/L		08/23/22 13:46	08/24/22 17:34	1
Fluoranthene	ND		0.098	ug/L		08/23/22 13:46	08/24/22 17:34	1
Fluorene	ND		0.049	ug/L		08/23/22 13:46	08/24/22 17:34	1
gamma-Chlordane	ND		0.049	ug/L		08/23/22 13:46	08/24/22 17:34	1
Heptachlor	ND		0.039	ug/L		08/23/22 13:46	08/24/22 17:34	1
Heptachlor epoxide (isomer B)	ND		0.049	ug/L		08/23/22 13:46	08/24/22 17:34	1
Hexachlorobenzene	ND		0.049	ug/L		08/23/22 13:46	08/24/22 17:34	1
Hexachlorocyclopentadiene	ND		0.049	ug/L		08/23/22 13:46	08/24/22 17:34	1
Indeno[1,2,3-cd]pyrene	ND		0.049	ug/L		08/23/22 13:46	08/24/22 17:34	1
Isophorone	ND		0.49	ug/L		08/23/22 13:46	08/24/22 17:34	1
Lindane	ND		0.039	ug/L		08/23/22 13:46	08/24/22 17:34	1
Malathion	ND		0.098	ug/L		08/23/22 13:46	08/24/22 17:34	1
Methoxychlor	ND		0.098	ug/L		08/23/22 13:46	08/24/22 17:34	1
Metolachlor	ND		0.049	ug/L		08/23/22 13:46	08/24/22 17:34	1
Metribuzin	ND		0.049	ug/L		08/23/22 13:46	08/24/22 17:34	1
Molinate	ND		0.098	ug/L		08/23/22 13:46	08/24/22 17:34	1
Naphthalene	ND		0.29	ug/L		08/23/22 13:46	08/24/22 17:34	1
Parathion	ND		0.098	ug/L		08/23/22 13:46	08/24/22 17:34	1
Pendimethalin (Penoxaline)	ND		0.098	ug/L		08/23/22 13:46	08/24/22 17:34	1
Total Permethrin (mixed isomers)	ND		0.20	ug/L		08/23/22 13:46	08/24/22 17:34	1
Phenanthrene	ND		0.039	ug/L		08/23/22 13:46	08/24/22 17:34	1
Propachlor	ND		0.049	ug/L		08/23/22 13:46	08/24/22 17:34	1
Pyrene	ND		0.049	ug/L		08/23/22 13:46	08/24/22 17:34	1
Simazine	ND		0.049	ug/L		08/23/22 13:46	08/24/22 17:34	1
Terbacil	ND		0.098	ug/L		08/23/22 13:46	08/24/22 17:34	1
Terbutylazine	ND		0.098	ug/L		08/23/22 13:46	08/24/22 17:34	1
Thiobencarb	ND		0.20	ug/L		08/23/22 13:46	08/24/22 17:34	1
trans-Nonachlor	ND		0.049	ug/L		08/23/22 13:46	08/24/22 17:34	1
Trifluralin	ND		0.098	ug/L		08/23/22 13:46	08/24/22 17:34	1

<i>Tentatively Identified Compound</i>	MB Est. Result	MB Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
<i>Decane</i>	1.19	T J N	ug/L		2.38	124-18-5	08/23/22 13:46	08/24/22 17:34	1
<i>Cyclopentasiloxane, decamethyl-</i>	0.522	T J N	ug/L		2.68	541-02-6	08/23/22 13:46	08/24/22 17:34	1
<i>n-Hexadecanoic acid</i>	1.02	T J N	ug/L		5.81	57-10-3	08/23/22 13:46	08/24/22 17:34	1
<i>Octadecanoic acid</i>	0.738	T J N	ug/L		6.48	57-11-4	08/23/22 13:46	08/24/22 17:34	1
<i>Squalene</i>	0.588	T J N	ug/L		10.09	111-02-4	08/23/22 13:46	08/24/22 17:34	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	94		70 - 130	08/23/22 13:46	08/24/22 17:34	1
Triphenylphosphate	111		70 - 130	08/23/22 13:46	08/24/22 17:34	1
Perylene-d12	92		70 - 130	08/23/22 13:46	08/24/22 17:34	1

Lab Sample ID: LCS 380-14452/3-A
Matrix: Water
Analysis Batch: 14796

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 14452

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4'-DDD	1.97	2.06		ug/L		105	70 - 130

Eurofins Eaton Monrovia

QC Sample Results

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

Job ID: 380-15929-1

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

Lab Sample ID: LCS 380-14452/3-A
Matrix: Water
Analysis Batch: 14796

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 14452

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4'-DDE	1.97	2.02		ug/L		103	70 - 130
2,4'-DDT	1.97	2.34		ug/L		119	70 - 130
2,4-Dinitrotoluene	1.97	2.25		ug/L		114	70 - 130
2,6-Dinitrotoluene	1.97	2.17		ug/L		110	70 - 130
4,4'-DDD	1.97	2.11		ug/L		107	70 - 130
4,4'-DDE	1.97	2.01		ug/L		102	70 - 130
4,4'-DDT	1.97	2.14		ug/L		108	70 - 130
Acenaphthene	1.97	1.89		ug/L		96	70 - 130
Acenaphthylene	1.97	1.81		ug/L		92	70 - 130
Acetochlor	1.97	2.26		ug/L		115	70 - 130
Alachlor	1.97	2.10		ug/L		107	70 - 130
alpha-BHC	1.97	2.01		ug/L		102	70 - 130
alpha-Chlordane	1.97	1.99		ug/L		101	70 - 130
Anthracene	1.97	2.00		ug/L		101	70 - 130
Atrazine	1.97	2.19		ug/L		111	70 - 130
Benz(a)anthracene	1.97	2.10		ug/L		107	70 - 130
Benzo[a]pyrene	1.97	2.10		ug/L		106	70 - 130
Benzo[b]fluoranthene	1.97	2.18		ug/L		111	70 - 130
Benzo[g,h,i]perylene	1.97	2.07		ug/L		105	70 - 130
Benzo[k]fluoranthene	1.97	2.14		ug/L		108	70 - 130
beta-BHC	1.97	2.00		ug/L		101	70 - 130
Bromacil	1.97	2.61	*+	ug/L		133	70 - 130
Butachlor	1.97	2.38		ug/L		121	70 - 130
Butylbenzylphthalate	1.97	2.27		ug/L		115	70 - 130
Caffeine	1.97	1.61		ug/L		82	45 - 137
Chlorobenzilate	1.97	2.54		ug/L		129	70 - 130
Chloroneb	1.97	2.00		ug/L		101	70 - 130
Chlorothalonil (Draconil, Bravo)	1.97	2.23		ug/L		113	70 - 130
Chlorpyrifos	1.97	2.16		ug/L		110	70 - 130
Chrysene	1.97	2.07		ug/L		105	70 - 130
delta-BHC	1.97	2.05		ug/L		104	70 - 130
Di(2-ethylhexyl)adipate	1.97	2.48		ug/L		126	70 - 130
Bis(2-ethylhexyl) phthalate	1.97	2.15		ug/L		109	70 - 130
Diazinon (Qualitative)	1.97	1.86		ug/L		94	15 - 132
Dibenz(a,h)anthracene	1.97	2.16		ug/L		110	70 - 130
Diclorvos (DDVP)	1.97	2.10		ug/L		106	70 - 130
Dieldrin	1.97	2.03		ug/L		103	70 - 130
Diethylphthalate	1.97	2.01		ug/L		102	70 - 130
Dimethoate	1.97	1.65		ug/L		84	35 - 100
Dimethylphthalate	1.97	2.07		ug/L		105	70 - 130
Di-n-butyl phthalate	3.94	3.97		ug/L		101	70 - 130
Di-n-octyl phthalate	1.97	1.95		ug/L		99	70 - 130
Endosulfan I (Alpha)	1.97	2.05		ug/L		104	70 - 130
Endosulfan II (Beta)	1.97	2.08		ug/L		106	70 - 130
Endosulfan sulfate	1.97	2.23		ug/L		113	70 - 130
Endrin	1.97	2.30		ug/L		117	70 - 130
Endrin aldehyde	1.97	1.98		ug/L		100	70 - 130
EPTC	1.97	2.06		ug/L		105	70 - 130
Fluoranthene	1.97	2.09		ug/L		106	70 - 130

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QC Sample Results

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

Job ID: 380-15929-1

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

Lab Sample ID: LCS 380-14452/3-A
Matrix: Water
Analysis Batch: 14796

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 14452

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Fluorene	1.97	2.05		ug/L		104	70 - 130
gamma-Chlordane	1.97	1.95		ug/L		99	70 - 130
Heptachlor	1.97	2.03		ug/L		103	70 - 130
Heptachlor epoxide (isomer B)	1.97	2.03		ug/L		103	70 - 130
Hexachlorobenzene	1.97	1.78		ug/L		90	70 - 130
Hexachlorocyclopentadiene	1.97	1.84		ug/L		93	70 - 130
Indeno[1,2,3-cd]pyrene	1.97	2.11		ug/L		107	70 - 130
Isophorone	1.97	1.67		ug/L		85	70 - 130
Lindane	1.97	2.00		ug/L		101	70 - 130
Malathion	1.97	2.40		ug/L		122	70 - 130
Methoxychlor	1.97	2.25		ug/L		114	70 - 130
Metolachlor	1.97	2.21		ug/L		112	70 - 130
Metribuzin	1.97	2.27		ug/L		115	70 - 130
Molinate	1.97	2.02		ug/L		103	70 - 130
Naphthalene	1.97	1.70		ug/L		86	70 - 130
Parathion	1.97	2.18		ug/L		111	70 - 130
Pendimethalin (Penoxaline)	1.97	2.23		ug/L		113	70 - 130
Phenanthrene	1.97	1.96		ug/L		100	70 - 130
Propachlor	1.97	2.09		ug/L		106	70 - 130
Pyrene	1.97	2.11		ug/L		107	70 - 130
Simazine	1.97	2.22		ug/L		112	70 - 130
Terbacil	1.97	2.28		ug/L		115	70 - 130
Terbutylazine	1.97	2.13		ug/L		108	70 - 130
Thiobencarb	1.97	1.92		ug/L		97	70 - 130
trans-Nonachlor	1.97	2.01		ug/L		102	70 - 130
Trifluralin	1.97	2.20		ug/L		112	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Nitro-m-xylene	93		70 - 130
Triphenylphosphate	106		70 - 130
Perylene-d12	97		70 - 130

Lab Sample ID: LCSD 380-14452/4-A
Matrix: Water
Analysis Batch: 14796

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 14452

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2,4'-DDD	1.97	2.11		ug/L		107	70 - 130	2	20
2,4'-DDE	1.97	2.06		ug/L		105	70 - 130	2	20
2,4'-DDT	1.97	2.35		ug/L		120	70 - 130	1	20
2,4-Dinitrotoluene	1.97	2.41		ug/L		122	70 - 130	7	20
2,6-Dinitrotoluene	1.97	2.41		ug/L		123	70 - 130	10	20
4,4'-DDD	1.97	2.18		ug/L		111	70 - 130	3	20
4,4'-DDE	1.97	2.03		ug/L		103	70 - 130	1	20
4,4'-DDT	1.97	2.17		ug/L		111	70 - 130	2	20
Acenaphthene	1.97	1.98		ug/L		101	70 - 130	5	20
Acenaphthylene	1.97	1.92		ug/L		97	70 - 130	6	20
Acetochlor	1.97	2.35		ug/L		120	70 - 130	4	20

Eurofins Eaton Monrovia

QC Sample Results

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

Job ID: 380-15929-1

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

Lab Sample ID: LCSD 380-14452/4-A
Matrix: Water
Analysis Batch: 14796

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 14452

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	RPD Limit
							Limits	RPD		
Alachlor	1.97	2.17		ug/L		110	70 - 130	3	20	
alpha-BHC	1.97	2.09		ug/L		107	70 - 130	4	20	
alpha-Chlordane	1.97	2.01		ug/L		102	70 - 130	1	20	
Anthracene	1.97	2.06		ug/L		105	70 - 130	3	20	
Atrazine	1.97	2.27		ug/L		115	70 - 130	3	20	
Benz(a)anthracene	1.97	2.14		ug/L		109	70 - 130	2	20	
Benzo[a]pyrene	1.97	2.15		ug/L		110	70 - 130	3	20	
Benzo[b]fluoranthene	1.97	2.23		ug/L		114	70 - 130	2	20	
Benzo[g,h,i]perylene	1.97	2.15		ug/L		109	70 - 130	4	20	
Benzo[k]fluoranthene	1.97	2.19		ug/L		112	70 - 130	3	20	
beta-BHC	1.97	2.09		ug/L		106	70 - 130	4	20	
Bromacil	1.97	2.73	*+	ug/L		139	70 - 130	4	20	
Butachlor	1.97	2.38		ug/L		121	70 - 130	0	20	
Butylbenzylphthalate	1.97	2.30		ug/L		117	70 - 130	1	20	
Caffeine	1.97	1.81		ug/L		92	45 - 137	12	20	
Chlorobenzilate	1.97	2.52		ug/L		128	70 - 130	1	20	
Chloroneb	1.97	2.10		ug/L		107	70 - 130	5	20	
Chlorothalonil (Draconil, Bravo)	1.97	2.27		ug/L		115	70 - 130	1	20	
Chlorpyrifos	1.97	2.22		ug/L		113	70 - 130	3	20	
Chrysene	1.97	2.14		ug/L		109	70 - 130	4	20	
delta-BHC	1.97	2.09		ug/L		106	70 - 130	2	20	
Di(2-ethylhexyl)adipate	1.97	2.50		ug/L		127	70 - 130	1	20	
Bis(2-ethylhexyl) phthalate	1.97	2.14		ug/L		109	70 - 130	0	20	
Diazinon (Qualitative)	1.97	1.88		ug/L		96	15 - 132	2	20	
Dibenz(a,h)anthracene	1.97	2.21		ug/L		113	70 - 130	2	20	
Diclorvos (DDVP)	1.97	2.30		ug/L		117	70 - 130	9	20	
Dieldrin	1.97	2.11		ug/L		107	70 - 130	3	20	
Diethylphthalate	1.97	2.12		ug/L		108	70 - 130	5	20	
Dimethoate	1.97	1.88		ug/L		96	35 - 100	13	20	
Dimethylphthalate	1.97	2.22		ug/L		113	70 - 130	7	20	
Di-n-butyl phthalate	3.93	3.95		ug/L		100	70 - 130	1	20	
Di-n-octyl phthalate	1.97	1.96		ug/L		100	70 - 130	1	20	
Endosulfan I (Alpha)	1.97	2.11		ug/L		107	70 - 130	3	20	
Endosulfan II (Beta)	1.97	2.17		ug/L		110	70 - 130	4	20	
Endosulfan sulfate	1.97	2.28		ug/L		116	70 - 130	2	20	
Endrin	1.97	2.37		ug/L		121	70 - 130	3	20	
Endrin aldehyde	1.97	1.98		ug/L		101	70 - 130	0	20	
EPTC	1.97	2.18		ug/L		111	70 - 130	6	20	
Fluoranthene	1.97	2.14		ug/L		109	70 - 130	2	20	
Fluorene	1.97	2.12		ug/L		108	70 - 130	4	20	
gamma-Chlordane	1.97	2.00		ug/L		102	70 - 130	3	20	
Heptachlor	1.97	2.07		ug/L		105	70 - 130	2	20	
Heptachlor epoxide (isomer B)	1.97	2.08		ug/L		106	70 - 130	3	20	
Hexachlorobenzene	1.97	1.90		ug/L		97	70 - 130	7	20	
Hexachlorocyclopentadiene	1.97	1.92		ug/L		98	70 - 130	5	20	
Indeno[1,2,3-cd]pyrene	1.97	2.21		ug/L		112	70 - 130	5	20	
Isophorone	1.97	1.91		ug/L		97	70 - 130	13	20	
Lindane	1.97	2.11		ug/L		108	70 - 130	6	20	
Malathion	1.97	2.41		ug/L		123	70 - 130	1	20	

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QC Sample Results

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

Job ID: 380-15929-1

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

Lab Sample ID: LCSD 380-14452/4-A
Matrix: Water
Analysis Batch: 14796

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 14452

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Methoxychlor	1.97	2.27		ug/L		116	70 - 130	1	20
Metolachlor	1.97	2.27		ug/L		116	70 - 130	3	20
Metribuzin	1.97	2.40		ug/L		122	70 - 130	5	20
Molinate	1.97	2.13		ug/L		108	70 - 130	5	20
Naphthalene	1.97	1.78		ug/L		91	70 - 130	5	20
Parathion	1.97	2.20		ug/L		112	70 - 130	1	20
Pendimethalin (Penoxaline)	1.97	2.29		ug/L		116	70 - 130	2	20
Phenanthrene	1.97	2.03		ug/L		103	70 - 130	3	20
Propachlor	1.97	2.22		ug/L		113	70 - 130	6	20
Pyrene	1.97	2.16		ug/L		110	70 - 130	2	20
Simazine	1.97	2.33		ug/L		119	70 - 130	5	20
Terbacil	1.97	2.37		ug/L		121	70 - 130	4	20
Terbutylazine	1.97	2.20		ug/L		112	70 - 130	3	20
Thiobencarb	1.97	1.97		ug/L		100	70 - 130	3	20
trans-Nonachlor	1.97	2.08		ug/L		106	70 - 130	4	20
Trifluralin	1.97	2.29		ug/L		116	70 - 130	4	20

Surrogate	LCSD %Recovery	LCSD Qualifier	LCSD Limits
2-Nitro-m-xylene	95		70 - 130
Triphenylphosphate	104		70 - 130
Perylene-d12	98		70 - 130

Lab Sample ID: MRL 380-14452/2-A
Matrix: Water
Analysis Batch: 14796

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 14452

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
2,4'-DDD	0.0980	0.136		ug/L		139	50 - 150
2,4'-DDE	0.0980	0.0988		ug/L		101	50 - 150
2,4'-DDT	0.0980	0.106		ug/L		108	50 - 150
2,4-Dinitrotoluene	0.0980	0.131		ug/L		134	50 - 150
2,6-Dinitrotoluene	0.0980	0.104		ug/L		106	50 - 150
4,4'-DDD	0.0980	0.106		ug/L		108	50 - 150
4,4'-DDE	0.0980	0.0996		ug/L		102	50 - 150
4,4'-DDT	0.0980	0.129		ug/L		131	50 - 150
Acenaphthene	0.0980	0.0937	J	ug/L		96	50 - 150
Acenaphthylene	0.0980	0.0703	J	ug/L		72	50 - 150
Acetochlor	0.0490	0.0483	J	ug/L		98	50 - 150
Alachlor	0.0490	0.0543		ug/L		111	50 - 150
alpha-BHC	0.0980	0.105		ug/L		107	50 - 150
alpha-Chlordane	0.0490	0.0481	J	ug/L		98	50 - 150
Anthracene	0.0196	ND		ug/L		92	50 - 150
Atrazine	0.0490	0.0484	J	ug/L		99	50 - 150
Benz(a)anthracene	0.0490	0.0611		ug/L		125	50 - 150
Benzo[a]pyrene	0.0196	0.0198	J	ug/L		101	50 - 150
Benzo[b]fluoranthene	0.0196	0.0196	J	ug/L		100	50 - 150
Benzo[g,h,i]perylene	0.0490	0.0399	J	ug/L		81	50 - 150
Benzo[k]fluoranthene	0.0196	0.0196	J	ug/L		100	50 - 150

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QC Sample Results

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

Job ID: 380-15929-1

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

Lab Sample ID: MRL 380-14452/2-A
Matrix: Water
Analysis Batch: 14796

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 14452

Analyte	Spike Added	MRL	MRL	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
beta-BHC	0.0980	0.110		ug/L		112	50 - 150
Bromacil	0.0980	0.125		ug/L		128	50 - 150
Butachlor	0.0490	0.0610		ug/L		125	50 - 150
Butylbenzylphthalate	0.147	0.173	J	ug/L		118	50 - 150
Caffeine	0.0490	0.0324	J	ug/L		66	50 - 150
Chlorobenzilate	0.0980	0.131		ug/L		134	50 - 150
Chloroneb	0.0980	0.0999		ug/L		102	50 - 150
Chlorothalonil (Draconil, Bravo)	0.0980	0.105		ug/L		107	50 - 150
Chlorpyrifos	0.0490	0.0473	J	ug/L		97	50 - 150
Chrysene	0.0196	0.0200		ug/L		102	50 - 150
delta-BHC	0.0980	0.136		ug/L		138	50 - 150
Di(2-ethylhexyl)adipate	0.294	0.361	J	ug/L		123	50 - 150
Bis(2-ethylhexyl) phthalate	0.588	0.596		ug/L		101	50 - 150
Diazinon (Qualitative)	0.0980	0.0904	J	ug/L		92	15 - 132
Dibenz(a,h)anthracene	0.0490	0.0377	J	ug/L		77	50 - 150
Diclorvos (DDVP)	0.0490	0.0556		ug/L		113	50 - 150
Dieldrin	0.0980	0.114	J	ug/L		116	50 - 150
Diethylphthalate	0.147	0.158	J	ug/L		108	50 - 150
Dimethoate	0.0980	0.0780	J	ug/L		80	35 - 100
Dimethylphthalate	0.294	0.305	J	ug/L		104	50 - 150
Di-n-butyl phthalate	0.294	0.316	J	ug/L		108	49 - 243
Di-n-octyl phthalate	0.0980	0.107		ug/L		109	50 - 150
Endosulfan I (Alpha)	0.0980	0.0980		ug/L		100	50 - 150
Endosulfan II (Beta)	0.0980	0.109		ug/L		112	50 - 150
Endosulfan sulfate	0.0980	0.114		ug/L		116	50 - 150
Endrin	0.0980	0.141		ug/L		144	50 - 150
Endrin aldehyde	0.0980	0.0830	J	ug/L		85	50 - 150
EPTC	0.0980	0.0995		ug/L		102	50 - 150
Fluoranthene	0.0490	0.0488	J	ug/L		100	50 - 150
Fluorene	0.0490	0.0509		ug/L		104	50 - 150
gamma-Chlordane	0.0490	0.0460	J	ug/L		94	50 - 150
Heptachlor	0.0392	0.0512		ug/L		131	50 - 150
Heptachlor epoxide (isomer B)	0.0490	0.0492		ug/L		100	50 - 150
Hexachlorobenzene	0.0490	0.0585		ug/L		119	50 - 150
Hexachlorocyclopentadiene	0.0490	0.0441	J	ug/L		90	50 - 150
Indeno[1,2,3-cd]pyrene	0.0490	0.0383	J	ug/L		78	50 - 150
Isophorone	0.0980	0.0832	J	ug/L		85	50 - 150
Lindane	0.0490	0.0476		ug/L		97	50 - 150
Malathion	0.0980	0.109		ug/L		111	50 - 150
Methoxychlor	0.0980	0.134		ug/L		136	50 - 150
Metolachlor	0.0490	0.0554		ug/L		113	50 - 150
Metribuzin	0.0490	0.0457	J	ug/L		93	50 - 150
Molinate	0.0980	0.0965	J	ug/L		98	50 - 150
Naphthalene	0.0980	0.0862	J	ug/L		88	50 - 150
Parathion	0.0980	0.142		ug/L		145	50 - 150
Pendimethalin (Penoxaline)	0.0980	0.125		ug/L		127	50 - 150
Phenanthrene	0.0196	0.0208	J	ug/L		106	50 - 150
Propachlor	0.0490	0.0536		ug/L		109	50 - 150
Pyrene	0.0490	0.0502		ug/L		102	50 - 150

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QC Sample Results

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

Job ID: 380-15929-1

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

Lab Sample ID: MRL 380-14452/2-A
Matrix: Water
Analysis Batch: 14796

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 14452

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Simazine	0.0490	0.0451	J	ug/L		92	50 - 150
Terbacil	0.0980	0.123		ug/L		126	50 - 150
Terbutylazine	0.0980	0.0979	J	ug/L		100	50 - 150
Thiobencarb	0.0980	0.104	J	ug/L		106	50 - 150
trans-Nonachlor	0.0490	0.0447	J	ug/L		91	50 - 150
Trifluralin	0.0980	0.0931	J	ug/L		95	50 - 150

Surrogate	MRL %Recovery	MRL Qualifier	Limits
2-Nitro-m-xylene	92		70 - 130
Triphenylphosphate	107		70 - 130
Perylene-d12	95		70 - 130

Lab Sample ID: 380-11467-F-1-A MS
Matrix: Water
Analysis Batch: 14796

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 14452

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
2,4'-DDD	ND		1.94	2.13		ug/L		110	70 - 130
2,4'-DDE	ND		1.94	2.11		ug/L		109	70 - 130
2,4'-DDT	ND		1.94	2.42		ug/L		124	70 - 130
2,4-Dinitrotoluene	ND		1.94	2.36		ug/L		122	70 - 130
2,6-Dinitrotoluene	ND		1.94	2.34		ug/L		120	70 - 130
4,4'-DDD	ND		1.94	2.18		ug/L		112	70 - 130
4,4'-DDE	ND		1.94	2.06		ug/L		106	70 - 130
4,4'-DDT	ND		1.94	2.19		ug/L		112	70 - 130
Acenaphthene	ND		1.94	1.96		ug/L		101	70 - 130
Acenaphthylene	ND		1.94	1.86		ug/L		96	70 - 130
Acetochlor	ND		1.94	2.34		ug/L		120	70 - 130
Alachlor	ND		1.94	2.17		ug/L		112	70 - 130
alpha-BHC	ND		1.94	2.08		ug/L		107	70 - 130
alpha-Chlordane	ND		1.94	2.04		ug/L		105	70 - 130
Anthracene	ND		1.94	2.08		ug/L		107	70 - 130
Atrazine	ND		1.94	2.26		ug/L		116	70 - 130
Benz(a)anthracene	ND		1.94	2.16		ug/L		111	70 - 130
Benzo[a]pyrene	ND		1.94	2.10		ug/L		108	70 - 130
Benzo[b]fluoranthene	ND		1.94	2.24		ug/L		115	70 - 130
Benzo[g,h,i]perylene	ND		1.94	2.09		ug/L		107	70 - 130
Benzo[k]fluoranthene	ND		1.94	2.16		ug/L		111	70 - 130
beta-BHC	ND		1.94	2.11		ug/L		108	70 - 130
Bromacil	ND	*+ F1	1.94	2.75	F1	ug/L		142	70 - 130
Butachlor	ND		1.94	2.42		ug/L		125	70 - 130
Butylbenzylphthalate	ND		1.94	2.32		ug/L		119	70 - 130
Caffeine	ND		1.94	1.73		ug/L		89	46 - 144
Chlorobenzilate	ND	F1	1.94	2.58	F1	ug/L		133	70 - 130
Chloroneb	ND		1.94	2.08		ug/L		107	70 - 130
Chlorothalonil (Draconil, Bravo)	ND		1.94	2.28		ug/L		117	70 - 130
Chlorpyrifos	ND		1.94	2.27		ug/L		117	70 - 130
Chrysene	ND		1.94	2.13		ug/L		110	70 - 130

QC Sample Results

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

Job ID: 380-15929-1

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

Lab Sample ID: 380-11467-F-1-A MS
Matrix: Water
Analysis Batch: 14796

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 14452

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
delta-BHC	ND		1.94	2.10		ug/L		108	70 - 130
Di(2-ethylhexyl)adipate	ND		1.94	2.50		ug/L		129	70 - 130
Bis(2-ethylhexyl) phthalate	ND		1.94	2.11		ug/L		84	70 - 130
Diazinon (Qualitative)	ND		1.94	1.87		ug/L		96	15 - 132
Dibenz(a,h)anthracene	ND		1.94	2.19		ug/L		112	70 - 130
Diclorvos (DDVP)	ND		1.94	2.27		ug/L		117	70 - 130
Dieldrin	ND		1.94	2.12		ug/L		109	70 - 130
Diethylphthalate	ND		1.94	2.09		ug/L		107	70 - 130
Dimethoate	ND		1.94	1.73		ug/L		89	34 - 111
Dimethylphthalate	ND		1.94	2.18		ug/L		112	70 - 130
Di-n-butyl phthalate	ND		3.89	4.09		ug/L		105	70 - 130
Di-n-octyl phthalate	ND		1.94	1.94		ug/L		100	70 - 130
Endosulfan I (Alpha)	ND		1.94	2.07		ug/L		107	70 - 130
Endosulfan II (Beta)	ND		1.94	2.15		ug/L		110	70 - 130
Endosulfan sulfate	ND		1.94	2.30		ug/L		118	70 - 130
Endrin	ND		1.94	2.39		ug/L		123	70 - 130
Endrin aldehyde	ND		1.94	2.06		ug/L		106	70 - 130
EPTC	ND		1.94	2.14		ug/L		110	70 - 130
Fluoranthene	ND		1.94	2.16		ug/L		111	70 - 130
Fluorene	ND		1.94	2.08		ug/L		107	70 - 130
gamma-Chlordane	ND		1.94	2.04		ug/L		105	70 - 130
Heptachlor	ND		1.94	2.12		ug/L		109	70 - 130
Heptachlor epoxide (isomer B)	ND		1.94	2.14		ug/L		110	70 - 130
Hexachlorobenzene	ND		1.94	1.90		ug/L		98	70 - 130
Hexachlorocyclopentadiene	ND		1.94	1.94		ug/L		100	70 - 130
Indeno[1,2,3-cd]pyrene	ND		1.94	2.15		ug/L		111	70 - 130
Isophorone	ND		1.94	1.92		ug/L		99	70 - 130
Lindane	ND		1.94	2.09		ug/L		108	70 - 130
Malathion	ND		1.94	2.44		ug/L		125	70 - 130
Methoxychlor	ND		1.94	2.31		ug/L		119	70 - 130
Metolachlor	ND		1.94	2.28		ug/L		117	70 - 130
Metribuzin	ND		1.94	2.42		ug/L		125	70 - 130
Molinate	ND		1.94	2.10		ug/L		108	70 - 130
Naphthalene	ND		1.94	1.77		ug/L		91	70 - 130
Parathion	ND		1.94	2.27		ug/L		117	70 - 130
Pendimethalin (Penoxaline)	ND		1.94	2.32		ug/L		119	70 - 130
Phenanthrene	ND		1.94	2.03		ug/L		105	70 - 130
Propachlor	ND		1.94	2.19		ug/L		113	70 - 130
Pyrene	ND		1.94	2.18		ug/L		112	70 - 130
Simazine	ND		1.94	2.32		ug/L		119	70 - 130
Terbacil	ND		1.94	2.42		ug/L		125	70 - 130
Terbutylazine	ND		1.94	2.22		ug/L		114	70 - 130
Thiobencarb	ND		1.94	1.98		ug/L		102	70 - 130
trans-Nonachlor	ND		1.94	2.13		ug/L		109	70 - 130
Trifluralin	ND		1.94	2.33		ug/L		120	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
2-Nitro-m-xylene	95		70 - 130

QC Sample Results

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

Job ID: 380-15929-1

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

Lab Sample ID: 380-11467-F-1-A MS
Matrix: Water
Analysis Batch: 14796

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 14452

Surrogate	%Recovery	MS MS Qualifier	Limits
Triphenylphosphate	106		70 - 130
Perylene-d12	96		70 - 130

Lab Sample ID: 380-15905-F-1-A DU
Matrix: Water
Analysis Batch: 14796

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 14452

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

QC Sample Results

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

Job ID: 380-15929-1

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

Lab Sample ID: 380-15905-F-1-A DU
Matrix: Water
Analysis Batch: 14796

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 14452

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

Surrogate	DU %Recovery	DU Qualifier	Limits
2-Nitro-m-xylene	94		70 - 130
Triphenylphosphate	106		70 - 130
Perylene-d12	90		70 - 130

QC Sample Results

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

Job ID: 380-15929-1

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

Lab Sample ID: 99172-B1
Matrix: water
Analysis Batch: O-38084

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: O-38084_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/20/22 16:04	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/20/22 16:04	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/20/22 16:04	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/20/22 16:04	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/20/22 16:04	1
Acenaphthene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/20/22 16:04	1
Acenaphthylene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/20/22 16:04	1
Anthracene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/20/22 16:04	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/20/22 16:04	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/20/22 16:04	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/20/22 16:04	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/20/22 16:04	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/20/22 16:04	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/20/22 16:04	1
Biphenyl	ND		0.005	0.001	µg/L		08/15/22 00:00	08/20/22 16:04	1
Chrysene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/20/22 16:04	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/20/22 16:04	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/20/22 16:04	1
Dibenzothiophene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/20/22 16:04	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		08/15/22 00:00	08/20/22 16:04	1
Fluoranthene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/20/22 16:04	1
Fluorene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/20/22 16:04	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/20/22 16:04	1
Naphthalene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/20/22 16:04	1
Perylene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/20/22 16:04	1
Phenanthrene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/20/22 16:04	1
Pyrene	ND		0.005	0.001	µg/L		08/15/22 00:00	08/20/22 16:04	1

Surrogate	Blank %Recovery	Blank Qualifier	Limits	Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	92		65 - 113	08/15/22 00:00	08/20/22 16:04	1
(d10-Phenanthrene)	93		80 - 111	08/15/22 00:00	08/20/22 16:04	1
(d12-Chrysene)	92		60 - 139	08/15/22 00:00	08/20/22 16:04	1
(d12-Perylene)	88		36 - 161	08/15/22 00:00	08/20/22 16:04	1
(d8-Naphthalene)	88		44 - 119	08/15/22 00:00	08/20/22 16:04	1

Lab Sample ID: 99172-BS1
Matrix: water
Analysis Batch: O-38084

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: O-38084_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1-Methylnaphthalene	0.5	0.414		µg/L		83	49 - 117
1-Methylphenanthrene	0.5	0.434		µg/L		87	66 - 127
2,3,5-Trimethylnaphthalene	0.5	0.427		µg/L		85	57 - 120
2,6-Dimethylnaphthalene	0.5	0.413		µg/L		83	54 - 117
2-Methylnaphthalene	0.5	0.41		µg/L		82	47 - 130
Acenaphthene	0.5	0.425		µg/L		85	53 - 131
Acenaphthylene	0.5	0.418		µg/L		84	43 - 140
Anthracene	0.5	0.449		µg/L		90	58 - 135

Eurofins Eaton Monrovia

QC Sample Results

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

Job ID: 380-15929-1

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

Lab Sample ID: 99172-BS1
Matrix: water
Analysis Batch: O-38084

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: O-38084_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benz[a]anthracene	0.5	0.365		µg/L		73	55 - 145
Benzo[a]pyrene	0.5	0.401		µg/L		80	51 - 143
Benzo[b]fluoranthene	0.5	0.446		µg/L		89	46 - 165
Benzo[e]pyrene	0.5	0.427		µg/L		85	42 - 152
Benzo[g,h,i]perylene	0.5	0.444		µg/L		89	63 - 133
Benzo[k]fluoranthene	0.5	0.426		µg/L		85	56 - 145
Biphenyl	0.5	0.422		µg/L		84	56 - 119
Chrysene	0.5	0.384		µg/L		77	56 - 141
Dibenz[a,h]anthracene	0.5	0.407		µg/L		81	55 - 150
Dibenzo[a,l]pyrene	0.5	0.499		µg/L		100	50 - 150
Dibenzothiophene	0.5	0.436		µg/L		87	75 - 113
Disalicylidenepropanediamine	25	18.1		µg/L		72	50 - 150
Fluoranthene	0.5	0.442		µg/L		88	60 - 146
Fluorene	0.5	0.432		µg/L		86	58 - 131
Indeno[1,2,3-cd]pyrene	0.5	0.415		µg/L		83	50 - 151
Naphthalene	0.5	0.402		µg/L		80	41 - 126
Perylene	0.5	0.4		µg/L		80	48 - 141
Phenanthrene	0.5	0.45		µg/L		90	67 - 127
Pyrene	0.5	0.425		µg/L		85	54 - 156

Surrogate	LCS %Recovery	LCS Qualifier	Limits
(d10-Acenaphthene)	87		65 - 113
(d10-Phenanthrene)	91		80 - 111
(d12-Chrysene)	84		60 - 139
(d12-Perylene)	86		36 - 161
(d8-Naphthalene)	81		44 - 119

Lab Sample ID: 99172-BS2
Matrix: water
Analysis Batch: O-38084

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: O-38084_P

Analyte	Spike Added	LCS DUP Result	LCS DUP Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1-Methylnaphthalene	0.5	0.442		µg/L		88	49 - 117	6	30
1-Methylphenanthrene	0.5	0.443		µg/L		89	66 - 127	2	30
2,3,5-Trimethylnaphthalene	0.5	0.45		µg/L		90	57 - 120	6	30
2,6-Dimethylnaphthalene	0.5	0.44		µg/L		88	54 - 117	6	30
2-Methylnaphthalene	0.5	0.439		µg/L		88	47 - 130	7	30
Acenaphthene	0.5	0.449		µg/L		90	53 - 131	6	30
Acenaphthylene	0.5	0.449		µg/L		90	43 - 140	7	30
Anthracene	0.5	0.427		µg/L		85	58 - 135	6	30
Benz[a]anthracene	0.5	0.387		µg/L		77	55 - 145	5	30
Benzo[a]pyrene	0.5	0.447		µg/L		89	51 - 143	11	30
Benzo[b]fluoranthene	0.5	0.472		µg/L		94	46 - 165	5	30
Benzo[e]pyrene	0.5	0.453		µg/L		91	42 - 152	7	30
Benzo[g,h,i]perylene	0.5	0.465		µg/L		93	63 - 133	4	30
Benzo[k]fluoranthene	0.5	0.468		µg/L		94	56 - 145	10	30
Biphenyl	0.5	0.455		µg/L		91	56 - 119	8	30
Chrysene	0.5	0.4		µg/L		80	56 - 141	4	30

Eurofins Eaton Monrovia

QC Sample Results

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

Job ID: 380-15929-1

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

Lab Sample ID: 99172-BS2
Matrix: water
Analysis Batch: O-38084

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: O-38084_P

Analyte	Spike Added	LCS DUP Result	LCS DUP Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
Dibenz[a,h]anthracene	0.5	0.439		µg/L		88	55 - 150	8	30	
Dibenzo[a,i]pyrene	0.5	0.512		µg/L		102	50 - 150	2	30	
Dibenzothiophene	0.5	0.461		µg/L		92	75 - 113	6	30	
Disalicylidenepropanediamine	25	23.3		µg/L		93	50 - 150	25	30	
Fluoranthene	0.5	0.459		µg/L		92	60 - 146	4	30	
Fluorene	0.5	0.449		µg/L		90	58 - 131	5	30	
Indeno[1,2,3-cd]pyrene	0.5	0.442		µg/L		88	50 - 151	6	30	
Naphthalene	0.5	0.437		µg/L		87	41 - 126	8	30	
Perylene	0.5	0.428		µg/L		86	48 - 141	7	30	
Phenanthrene	0.5	0.47		µg/L		94	67 - 127	4	30	
Pyrene	0.5	0.443		µg/L		89	54 - 156	5	30	

Surrogate	LCS DUP %Recovery	LCS DUP Qualifier	Limits
(d10-Acenaphthene)	92		65 - 113
(d10-Phenanthrene)	98		80 - 111
(d12-Chrysene)	88		60 - 139
(d12-Perylene)	95		36 - 161
(d8-Naphthalene)	90		44 - 119

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

Lab Sample ID: 22VG39H05B
Matrix: WATER
Analysis Batch: 22VG39H05

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	0.02		mg/L			08/12/22 12:35	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
BROMOFLUOROBENZENE					08/12/22 12:35	1

Lab Sample ID: 22VG39H05L
Matrix: WATER
Analysis Batch: 22VG39H05

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec	
							Limits	RPD
GASOLINE	0.5	0.421		mg/L		84	60 - 130	

Surrogate	LCS %Recovery	LCS Qualifier	Limits
BROMOFLUOROBENZENE	109		70 - 130

QC Sample Results

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

Job ID: 380-15929-1

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

Lab Sample ID: 22DSH022WB
Matrix: WATER
Analysis Batch: 22DSH022W

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DIESEL	ND	U	0.025		mg/L			08/15/22 14:24	1
MOTOR OIL	ND	U	0.05		mg/L			08/15/22 14:24	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
BROMOBENZENE								08/15/22 14:24	1
HEXACOSANE								08/15/22 14:24	1

Lab Sample ID: 22DSH022WL
Matrix: WATER
Analysis Batch: 22DSH022W

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
DIESEL	2.5	2.58		mg/L		103	50 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
BROMOBENZENE	82		60 - 130				
HEXACOSANE	100		60 - 130				

QC Association Summary

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

Job ID: 380-15929-1

GC/MS Semi VOA

Prep Batch: 14452

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-15929-1	HALAWA WELLS UNIT 1 (331-023)	Total/NA	Drinking Water	525.2	
MB 380-14452/1-A	Method Blank	Total/NA	Water	525.2	
LCS 380-14452/3-A	Lab Control Sample	Total/NA	Water	525.2	
LCSD 380-14452/4-A	Lab Control Sample Dup	Total/NA	Water	525.2	
MRL 380-14452/2-A	Lab Control Sample	Total/NA	Water	525.2	
380-11467-F-1-A MS	Matrix Spike	Total/NA	Water	525.2	
380-15905-F-1-A DU	Duplicate	Total/NA	Water	525.2	

Analysis Batch: 14796

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-15929-1	HALAWA WELLS UNIT 1 (331-023)	Total/NA	Drinking Water	525.2	14452
MB 380-14452/1-A	Method Blank	Total/NA	Water	525.2	14452
LCS 380-14452/3-A	Lab Control Sample	Total/NA	Water	525.2	14452
LCSD 380-14452/4-A	Lab Control Sample Dup	Total/NA	Water	525.2	14452
MRL 380-14452/2-A	Lab Control Sample	Total/NA	Water	525.2	14452
380-11467-F-1-A MS	Matrix Spike	Total/NA	Water	525.2	14452
380-15905-F-1-A DU	Duplicate	Total/NA	Water	525.2	14452

Subcontract

Analysis Batch: O-38084

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-15929-1	HALAWA WELLS UNIT 1 (331-023)	Total/NA	Drinking Water	625 PAH Physis LL (EAL) + TICs	O-38084_P
99172-B1	Method Blank	Total/NA	water	625 PAH Physis LL (EAL) + TICs	O-38084_P
99172-BS1	Lab Control Sample	Total/NA	water	625 PAH Physis LL (EAL) + TICs	O-38084_P
99172-BS2	Lab Control Sample Dup	Total/NA	water	625 PAH Physis LL (EAL) + TICs	O-38084_P

Analysis Batch: 22DSH022W

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-15929-1	HALAWA WELLS UNIT 1 (331-023)	Total/NA	Drinking Water	8015 Gas (Purgeable) LL (EAL)	
22DSH022WB	Method Blank	Total/NA	WATER	8015 Gas (Purgeable) LL (EAL)	
22DSH022WL	Lab Control Sample	Total/NA	WATER	8015 Gas (Purgeable) LL (EAL)	

Analysis Batch: 22VG39H05

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-15929-1	HALAWA WELLS UNIT 1 (331-023)	Total/NA	Drinking Water	8015 Diesel LL (EAL) and Motor Oil	
22VG39H05B	Method Blank	Total/NA	WATER	8015 Diesel LL (EAL) and Motor Oil	
22VG39H05L	Lab Control Sample	Total/NA	WATER	8015 Diesel LL (EAL) and Motor Oil	

Eurofins Eaton Monrovia

QC Association Summary

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

Job ID: 380-15929-1

Subcontract

Prep Batch: O-38084_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-15929-1	HALAWA WELLS UNIT 1 (331-023)	Total/NA	Drinking Water	EPA_625	
99172-B1	Method Blank	Total/NA	water	EPA_625	
99172-BS1	Lab Control Sample	Total/NA	water	EPA_625	
99172-BS2	Lab Control Sample Dup	Total/NA	water	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: 380-15929-1

Client Sample ID: HALAWA WELLS UNIT 1 (331-023)

Lab Sample ID: 380-15929-1

Date Collected: 08/10/22 09:35

Matrix: Drinking Water

Date Received: 08/11/22 10:10

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Analyst</u>	<u>Lab</u>	<u>Prepared or Analyzed</u>
Total/NA	Prep	525.2			14452	G9MN	EA MON	08/23/22 13:46
Total/NA	Analysis	525.2		1	14796	UJC9	EA MON	08/24/22 21:20
Total/NA	Prep	EPA_625		1	O-38084_P			08/15/22 00:00
Total/NA	Analysis	625 PAH Physis LL (EAL) + TICs		1	O-38084	YC		08/21/22 11:35
Total/NA	Analysis	8015 Diesel LL (EAL) and Motor Oil		1	22VG39H05	SCerva		08/12/22 16:49
Total/NA	Analysis	8015 Gas (Purgeable) LL (EAL)		1	22DSH022W	SDees		08/15/22 18:26

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: 380-15929-1

Laboratory: Eurofins Eaton Monrovia

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

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

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

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

Accreditation/Certification Summary

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

Job ID: 380-15929-1

Laboratory: Eurofins Eaton Monrovia (Continued)

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

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

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

Method Summary

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

Job ID: 380-15929-1

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: 380-15929-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	PWSID Number
380-15929-1	HALAWA WELLS UNIT 1 (331-023)	Drinking Water	08/10/22 09:35	08/11/22 10:10	HI0000331

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3051 Fujita Street
Torrance, CA 90505
Tel: (310)-618-8889

Date: 08-31-2022
EMAX Batch No.: 22H159

Attn: Jackie Contreras

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

Subject: Laboratory Report
Project: 380-15929

Enclosed is the Laboratory report for samples received on 08/12/22.
The data reported relate only to samples listed below :

Sample ID	Control #	Col Date	Matrix	Analysis
380-15929-1	H159-01	08/10/22	WATER	TPH GASOLINE TPH DIESEL & MOTOR OIL

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

Chain of Custody Record



22H59



Environment Testing
America

Client Information (Sub Contract Lab)

Client Contact: **EMAX Laboratories Inc** | Phone: | Lab Pk.: **Frank, Debbie L** | Carrier/Tracking No(S):
 Shipping/Receiving: | E-Mail: **Debbie.Frank@eurofins.com** | State of Origin: **Hawaii**
 Company: | Address: **3051 Fujita Street, Torrance, CA, 90505** | Accreditations Required (See note): **State - Hawaii**
 Due Date Requested: **8/25/2022** | Analysis Requested: | Job #: **380-15929-1**
 City: **Torrance** | TAT Requested (days): | **Analysis Requested**
 State Zip: **CA, 90505** | PO #: | **Preservation Codes:**
 Phone: | WO #: | **A - HCL, B - NaOH, 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)**
 Project Name: **RED-HILL** | Project #: **38001111** | Other:
 Site: **Honolulu BWS Sites** | SSSW#:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	MATRIX (Water, Solid, O-wash, Oil, BT=118us, AA=)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUB (8015 Gas (Purgeable) LL (EAL)/ 8015 Gas (Purgeable) LL (EAL))	SUB (8015 Diesel LL (EAL) and Motor Oil)/ 8015 Diesel LL (EAL) and Motor Oil	Total Number of Containers	Special Instructions/Note:
HALAWA WELLS UNITS 1 & 2 (331-206-T P065) (380-15929-1)	8/10/22	09:35	Water		X	X			6	See Attached Instructions

Note: Since laboratory accreditations are subject to change, Eurofins Eaton Analytical, LLC places the ownership of method, analyte & accreditation compliance upon out sub-contract 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
 Unconfirmed
 Deliverable Requested: I, II, III, IV, Other (Specify) **Primary Deliverable Rank: 2**
 Special Instructions/QC Requirements: Return To Client Disposal By Lab Archive For _____ Months
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Empty Kit Relinquished by: _____ Date: _____

Relinquished by: *[Signature]* Date/Time: **8/17/22 11:58** Company: **EMAX**

Relinquished by: _____ Date/Time: _____ Company: _____

Relinquished by: _____ Date/Time: _____ Company: _____

Custody Seals Intact: _____ Custody Seal No.: _____ Cooler Temperature(s) °C and Other Remarks: **5.4/5.2 C/F - 0.2**

REPORT ID: **22H159** Page 2 of 22



Type of Delivery <input type="checkbox"/> Fedex <input type="checkbox"/> UPS <input type="checkbox"/> GSO <input type="checkbox"/> Others <input type="checkbox"/> EMAX Courier <input checked="" type="checkbox"/> Client Delivery	Airbill / Tracking Number	ECN <u>22H159</u> <u>22812</u> Recipient <u>SHOWIN ZAMORA Cecilia Chav</u> Date <u>8/12/22</u> Time <u>1158</u>
---	---------------------------	---

COC INSPECTION

<input checked="" type="checkbox"/> Client Name	<input checked="" type="checkbox"/> Client PM/FC	<input type="checkbox"/> Sampler Name	<input checked="" type="checkbox"/> Sampling Date/Time	<input checked="" type="checkbox"/> Sample ID	<input checked="" type="checkbox"/> Matrix
<input checked="" type="checkbox"/> Address	<input checked="" type="checkbox"/> Tel # / Fax #	<input checked="" type="checkbox"/> Courier Signature	<input checked="" type="checkbox"/> Analysis Required	<input type="checkbox"/> Preservative (if any)	<input checked="" type="checkbox"/> TAT
Safety Issues (if any) Note:	<input type="checkbox"/> High concentrations expected	<input type="checkbox"/> From Superfund Site	<input type="checkbox"/> Rad screening required		

PACKAGING INSPECTION

Container	<input checked="" type="checkbox"/> Cooler	<input type="checkbox"/> Box	<input type="checkbox"/> Other
Condition	<input type="checkbox"/> Custody Seal	<input type="checkbox"/> Intact	<input type="checkbox"/> Damaged
Packaging	<input type="checkbox"/> Bubble Pack	<input type="checkbox"/> Styrofoam	<input type="checkbox"/> Popcorn
Temperatures (Cool, ≤6 °C but not frozen)	<input checked="" type="checkbox"/> Cooler 1 <u>2.4/5.2</u> °C	<input type="checkbox"/> Cooler 2 _____ °C	<input type="checkbox"/> Cooler 3 _____ °C
Thermometer:	<input type="checkbox"/> Cooler 6 _____ °C	<input type="checkbox"/> Cooler 7 _____ °C	<input type="checkbox"/> Cooler 8 _____ °C
	<input type="checkbox"/> Cooler 9 _____ °C	<input type="checkbox"/> Cooler 10 _____ °C	
	A - S/N _____	<u>B</u> - S/N <u>210760237</u>	C - S/N _____
			D - S/N <u>210760272</u>

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

DISCREPANCIES

LabSampleID	LabSampleContainerID	Code	ClientSample Label ID / Information	Corrective Action
[Large diagonal scribble across the table]				

pH holding time requirement for water samples is 15 mins. Water samples for pH analysis are received beyond 15 minutes from sampling time. MS 8/16/22

NOTES/OBSERVATIONS:

SAMPLE MATRIX IS DRINKING WATER? YES NO

- LEGEND:**
- | | | |
|---|---|--|
| Code Description-Sample Management | Code Description-Sample Management | Code Description-Sample Management |
| D1 Analysis is not indicated in _____ | D13 Out of Holding Time | R1 Proceed as indicated in <input type="checkbox"/> COC <input type="checkbox"/> Label |
| D2 Analysis mismatch COC vs label | D14 Bubble is >6mm | R2 Refer to attached instruction |
| D3 Sample ID mismatch COC vs label | D15 No trip blank in cooler | R3 Cancel the analysis |
| D4 Sample ID is not indicated in _____ | D16 Preservation not indicated in _____ | R4 Use vial with smallest bubble first |
| D5 Container -[improper] [leaking] [broken] | D17 Preservation mismatch COC vs label | R5 Log-in with latest sampling date and time + 1 min |
| D6 Date/Time is not indicated in _____ | D18 Insufficient chemical preservative | R6 Adjust pH as necessary |
| D7 Date/Time mismatch COC vs label | D19 Insufficient Sample | R7 Filter and preserved as necessary |
| D8 Sample listed in COC is not received | D20 No filtration info for dissolved analysis | R8 _____ |
| D9 Sample received is not listed in COC | D21 No sample for moisture determination | R9 _____ |
| D10 No initial/date on corrections in COC/label | D22 _____ | R10 _____ |
| D11 Container count mismatch COC vs received | D23 _____ | R11 _____ |
| D12 Container size mismatch COC vs received | D24 _____ | R12 _____ |

REVIEWS:

Sample Labeling <u>SHOWIN ZAMORA</u> / <u>Cecilia</u>	SRF <u>Cecilia</u>	PM <u>MS</u>
Date <u>8/12/22</u> / <u>8/12/22</u>	Date <u>8/12/22</u>	Date <u>8/16/22</u>

REPORT ID: 22H159 Page 3 of 22

REPORTING CONVENTIONS

DATA QUALIFIERS:

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

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

ACRONYMS AND ABBREVIATIONS:

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

DATES

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

LABORATORY REPORT FOR

EUROFINS EATON ANALYTICAL

380-15929

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

SDG#: 22H159



CASE NARRATIVE

Client : EUROFINs EATON ANALYTICAL

Project: 380-15929

SDG : 22H159

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

One(1) water sample was received on 08/12/22 to be analyzed for Total Petroleum Hydrocarbons by Purge and Trap in accordance with Method 5030B/8015B and project specific requirements.

Holding Time

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. VG39H05B - 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. VG39H05L/VG39H05C 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 H144-01M/H144-01S. 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

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.

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SAMPLE RESULTS

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QC SUMMARIES

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL
PROJECT : 380-15929
BATCH NO. : 22H159
METHOD : 5030B/8015B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR:	1	1	1
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: VG39H05B	VG39H05L	VG39H05C
LAB FILE ID	: EH12005A	EH12006A	EH12007A
DATE PREPARED	: 08/12/22 12:35	08/12/22 13:11	08/12/22 13:47
DATE ANALYZED	: 08/12/22 12:35	08/12/22 13:11	08/12/22 13:47
PREP BATCH	: 22VG39H05	22VG39H05	22VG39H05
CALIBRATION REF:	EH12004A	EH12004A	EH12004A

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	0.421	84	0.500	0.422	84	0	60-130	30

SURROGATE PARAMETER	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	QCLimit (%)
Bromofluorobenzene	0.0400	0.0435	109	0.0400	0.0434	109	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 : 380-15847
BATCH NO. : 22H144
METHOD : 5030B/8015B

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=====
MATRIX      : WATER                               % MOISTURE:NA
DILUTION FACTOR: 1                               1
SAMPLE ID   : 380-15847-1                         380-15847-1MS
LAB SAMPLE ID : H144-01                           H144-01M
LAB FILE ID  : EH12008A                           EH12009A
DATE PREPARED : 08/12/22 14:24                    08/12/22 15:01
DATE ANALYZED : 08/12/22 14:24                    08/12/22 15:37
PREP BATCH   : 22VG39H05                          22VG39H05
CALIBRATION REF: EH12004A                         EH12004A
    
```

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	0.445	89	0.500	0.438	88	2	50-130	30

SURROGATE PARAMETER	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	QCLimit (%)
Bromofluorobenzene	0.0400	0.0450	113	0.0400	0.0451	113	60-140

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

LABORATORY REPORT FOR

EUROFINS EATON ANALYTICAL

380-15929

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

SDG#: 22H159



CASE NARRATIVE

Client : EUROFINs EATON ANALYTICAL

Project: 380-15929

SDG : 22H159

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

One(1) water sample was received on 08/12/22 to be analyzed for Total Petroleum Hydrocarbons by Extraction in accordance with Method 3520C/8015B and project specific requirements.

Holding Time

The sample was analyzed within the prescribed holding time.

Calibration

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

Method Blank

Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. DSH022WB - 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 DSH022WL. 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 22H130-01M/22H130-01S. 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.

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SAMPLE RESULTS

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : EUROFINS EATON ANALYTICAL   Date Collected: 08/10/22 09:35
Project     : 380-15929                   Date Received: 08/12/22
Batch No.   : 22H159                       Date Extracted: 08/12/22 17:00
Sample ID   : 380-15929-1                 Date Analyzed: 08/15/22 18:26
Lab Samp ID: 22H159-01                     Dilution Factor: 1
Lab File ID: LH15022A                       Matrix: WATER
Ext Btch ID: 22DSH022W                     % Moisture: NA
Calib. Ref.: LH15003A                       Instrument ID: D5
=====

```

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)	
Diesel	ND	0.024	0.012	
Motor Oil	ND	0.047	0.024	
SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.286	0.470	61	60-130
Hexacosane	0.109	0.118	93	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 : 1060ml Final Volume : 5ml
Prepared by : JMuert Analyzed by : SDeeso

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QC SUMMARIES

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : EUROFINS EATON ANALYTICAL   Date Collected: 08/12/22 17:00
Project    : 380-15929                   Date Received: 08/12/22
Batch No.  : 22H159                       Date Extracted: 08/12/22 17:00
Sample ID  : MBLK1W                       Date Analyzed: 08/15/22 14:24
Lab Samp ID: DSH022WB                     Dilution Factor: 1
Lab File ID: LH15009A                     Matrix: WATER
Ext Btch ID: 22DSH022W                   % Moisture: NA
Calib. Ref.: LH15003A                   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	0.388	0.500	78	60-130
Hexacosane	0.111	0.125	89	60-130

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

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

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL
PROJECT : 380-15929
BATCH NO. : 22H159
METHOD : 3520C/8015B

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MATRIX	: WATER	% MOISTURE:NA
DILUTION FACTOR:	1	1
SAMPLE ID	: MBLK1W	LCS1W
LAB SAMPLE ID	: DSH022WB	DSH022WL
LAB FILE ID	: LH15009A	LH15010A
DATE PREPARED	: 08/12/22 17:00	08/12/22 17:00
DATE ANALYZED	: 08/15/22 14:24	08/15/22 14:42
PREP BATCH	: 22DSH022W	22DSH022W
CALIBRATION REF:	LH15003A	LH15003A

ACCESSION:

PARAMETERS	MBResult (mg/L)	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	QCLimit (%)
Diesel	ND	2.50	2.58	103	50-130

SURROGATE PARAMETERS	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	QCLimit (%)
Bromobenzene	0.500	0.409	82	60-130
Hexacosane	0.125	0.125	100	60-130

MB: Method Blank sample LCS: Lab Control Sample

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL
PROJECT : 380-15733
BATCH NO. : 22H130
METHOD : 3520C/8015B

MATRIX : WATER		% MOISTURE:NA
DILUTION FACTOR: 1	1	1
SAMPLE ID : 380-15733-1	380-15733-1MS	380-15733-1MSD
LAB SAMPLE ID : 22H130-01	22H130-01M	22H130-01S
LAB FILE ID : LH15013A	LH15014A	LH15015A
DATE PREPARED : 08/12/22 17:00	08/12/22 17:00	08/12/22 17:00
DATE ANALYZED : 08/15/22 15:38	08/15/22 15:57	08/15/22 16:16
PREP BATCH : 22DSH022W	22DSH022W	22DSH022W
CALIBRATION REF: LH15003A	LH15003A	LH15003A

ACCESSION:

PARAMETERS	PSResult (mg/L)	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Diesel	ND	2.97	3.56	120	2.78	3.08	111	14	50-130	30

SURROGATE PARAMETERS	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	QCLimit (%)
Bromobenzene	0.595	0.449	75	0.555	0.384	69	60-130
Hexacosane	0.149	0.139	93	0.139	0.123	89	60-130

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

August 22, 2022

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

Project Name: RED-HILL Project # 38001111 Job # 380-15929-1
 Physis Project ID: 1407003-272

Dear Debbie,

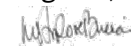
Enclosed are the analytical results for the sample submitted to PHYSIS Environmental Laboratories, Inc. (PHYSIS) on 8/12/2022. A total of 1 sample was received for analysis in accordance with the attached chain of custody (COC). Per the COC, the sample was analyzed for:

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

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

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

Regards,


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

PROJECT SAMPLE LIST

Eurofins Eaton Analytical

PHYSIS Project ID: 1407003-272

RED-HILL Project # 38001111 Job # 380-15929-1

Total Samples: 1

PHYSIS ID	Sample ID	Description	Date	Time	Matrix	Sample Type
99173	HALAWA WELLS UNITS 1 & 2	31-206-TP065 (380-15929-1)	8/10/2022	9:35	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

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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: 99173-R1	HALAWA WELLS UNITS 1 & 2 331-20 Matrix: Samplewater						Sampled:	10-Aug-22	9:35	Received:	12-Aug-22	
Disalicylidenepropanediamine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-38084	15-Aug-22	21-Aug-22	



Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed	
Sample ID: 99173-R1	HALAWA WELLS UNITS 1 & 2 331-20 Matrix: Samplewater						Sampled:	10-Aug-22	9:35	Received:	12-Aug-22	
(d10-Acenaphthene)	EPA 625.1	% Recovery	83	1			Total		O-38084	15-Aug-22	21-Aug-22	
(d10-Phenanthrene)	EPA 625.1	% Recovery	90	1			Total		O-38084	15-Aug-22	21-Aug-22	
(d12-Chrysene)	EPA 625.1	% Recovery	91	1			Total		O-38084	15-Aug-22	21-Aug-22	
(d12-Perylene)	EPA 625.1	% Recovery	80	1			Total		O-38084	15-Aug-22	21-Aug-22	
(d8-Naphthalene)	EPA 625.1	% Recovery	77	1			Total		O-38084	15-Aug-22	21-Aug-22	
1-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38084	15-Aug-22	21-Aug-22	
1-Methylphenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38084	15-Aug-22	21-Aug-22	
2,3,5-Trimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38084	15-Aug-22	21-Aug-22	
2,6-Dimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38084	15-Aug-22	21-Aug-22	
2-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38084	15-Aug-22	21-Aug-22	
Acenaphthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38084	15-Aug-22	21-Aug-22	
Acenaphthylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38084	15-Aug-22	21-Aug-22	
Anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38084	15-Aug-22	21-Aug-22	
Benz[a]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38084	15-Aug-22	21-Aug-22	
Benzo[a]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38084	15-Aug-22	21-Aug-22	
Benzo[b]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38084	15-Aug-22	21-Aug-22	
Benzo[e]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38084	15-Aug-22	21-Aug-22	
Benzo[g,h,i]perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38084	15-Aug-22	21-Aug-22	
Benzo[k]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38084	15-Aug-22	21-Aug-22	
Biphenyl	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38084	15-Aug-22	21-Aug-22	
Chrysene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38084	15-Aug-22	21-Aug-22	
Dibenz[a,h]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38084	15-Aug-22	21-Aug-22	
Dibenzo[a,l]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38084	15-Aug-22	21-Aug-22	
Dibenzothiophene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38084	15-Aug-22	21-Aug-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-38084	15-Aug-22	21-Aug-22
Fluorene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38084	15-Aug-22	21-Aug-22
Indeno[1,2,3-cd]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38084	15-Aug-22	21-Aug-22
Naphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38084	15-Aug-22	21-Aug-22
Perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38084	15-Aug-22	21-Aug-22
Phenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38084	15-Aug-22	21-Aug-22
Pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38084	15-Aug-22	21-Aug-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: 99172-B1		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:		Received:			
		Method: EPA 625.1			Batch ID: O-38084			Prepared: 15-Aug-22		Analyzed: 20-Aug-22			
Disalicylideneopropanediamine	Total	ND	1	0.05	0.1	µg/L							
Sample ID: 99172-BS1		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:		Received:			
		Method: EPA 625.1			Batch ID: O-38084			Prepared: 15-Aug-22		Analyzed: 20-Aug-22			
Disalicylideneopropanediamine	Total	18.1	1	0.05	0.1	µg/L	25	0	72	50 - 150%	PASS		
Sample ID: 99172-BS2		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:		Received:			
		Method: EPA 625.1			Batch ID: O-38084			Prepared: 15-Aug-22		Analyzed: 20-Aug-22			
Disalicylideneopropanediamine	Total	23.3	1	0.05	0.1	µg/L	25	0	93	50 - 150%	PASS	25	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: 99172-B1		QAQC Procedural Blank			Matrix: BlankMatrix		Sampled:		Received:		
		Method: EPA 625.1				Batch ID: O-38084	Prepared: 15-Aug-22		Analyzed: 20-Aug-22		
(d10-Acenaphthene)	Total	92	1			% Recovery	100	92	65 - 113%	PASS	
(d10-Phenanthrene)	Total	93	1			% Recovery	100	93	80 - 111%	PASS	
(d12-Chrysene)	Total	92	1			% Recovery	100	92	60 - 139%	PASS	
(d12-Perylene)	Total	88	1			% Recovery	100	88	36 - 161%	PASS	
(d8-Naphthalene)	Total	88	1			% Recovery	100	88	44 - 119%	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 CODEc
							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: 99172-BS1		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:		Received:		
Method: EPA 625.1		Batch ID: O-38084			Prepared: 15-Aug-22		Analyzed: 20-Aug-22					
(d10-Acenaphthene)	Total	87	1			% Recovery	100	0	87	65 - 113%	PASS	
(d10-Phenanthrene)	Total	91	1			% Recovery	100	0	91	80 - 111%	PASS	
(d12-Chrysene)	Total	84	1			% Recovery	100	0	84	60 - 139%	PASS	
(d12-Perylene)	Total	86	1			% Recovery	100	0	86	36 - 161%	PASS	
(d8-Naphthalene)	Total	81	1			% Recovery	100	0	81	44 - 119%	PASS	
1-Methylnaphthalene	Total	0.414	1	0.001	0.005	µg/L	0.5	0	83	49 - 117%	PASS	
1-Methylphenanthrene	Total	0.434	1	0.001	0.005	µg/L	0.5	0	87	66 - 127%	PASS	
2,3,5-Trimethylnaphthalene	Total	0.427	1	0.001	0.005	µg/L	0.5	0	85	57 - 120%	PASS	
2,6-Dimethylnaphthalene	Total	0.413	1	0.001	0.005	µg/L	0.5	0	83	54 - 117%	PASS	
2-Methylnaphthalene	Total	0.41	1	0.001	0.005	µg/L	0.5	0	82	47 - 130%	PASS	
Acenaphthene	Total	0.425	1	0.001	0.005	µg/L	0.5	0	85	53 - 131%	PASS	
Acenaphthylene	Total	0.418	1	0.001	0.005	µg/L	0.5	0	84	43 - 140%	PASS	
Anthracene	Total	0.449	1	0.001	0.005	µg/L	0.5	0	90	58 - 135%	PASS	
Benz[a]anthracene	Total	0.365	1	0.001	0.005	µg/L	0.5	0	73	55 - 145%	PASS	
Benzo[a]pyrene	Total	0.401	1	0.001	0.005	µg/L	0.5	0	80	51 - 143%	PASS	
Benzo[b]fluoranthene	Total	0.446	1	0.001	0.005	µg/L	0.5	0	89	46 - 165%	PASS	
Benzo[e]pyrene	Total	0.427	1	0.001	0.005	µg/L	0.5	0	85	42 - 152%	PASS	
Benzo[g,h,i]perylene	Total	0.444	1	0.001	0.005	µg/L	0.5	0	89	63 - 133%	PASS	
Benzo[k]fluoranthene	Total	0.426	1	0.001	0.005	µg/L	0.5	0	85	56 - 145%	PASS	
Biphenyl	Total	0.422	1	0.001	0.005	µg/L	0.5	0	84	56 - 119%	PASS	
Chrysene	Total	0.384	1	0.001	0.005	µg/L	0.5	0	77	56 - 141%	PASS	
Dibenz[a,h]anthracene	Total	0.407	1	0.001	0.005	µg/L	0.5	0	81	55 - 150%	PASS	
Dibenzo[a,l]pyrene	Total	0.499	1	0.001	0.005	µg/L	0.5	0	100	50 - 150%	PASS	
Dibenzothiophene	Total	0.436	1	0.001	0.005	µg/L	0.5	0	87	75 - 113%	PASS	

Polynuclear Aromatic Hydrocarbons

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY		PRECISION	QA CODEc
							LEVEL	RESULT	%	LIMITS	%	LIMITS
Fluoranthene	Total	0.442	1	0.001	0.005	µg/L	0.5	0	88	60 - 146%	PASS	
Fluorene	Total	0.432	1	0.001	0.005	µg/L	0.5	0	86	58 - 131%	PASS	
Indeno[1,2,3-cd]pyrene	Total	0.415	1	0.001	0.005	µg/L	0.5	0	83	50 - 151%	PASS	
Naphthalene	Total	0.402	1	0.001	0.005	µg/L	0.5	0	80	41 - 126%	PASS	
Perylene	Total	0.4	1	0.001	0.005	µg/L	0.5	0	80	48 - 141%	PASS	
Phenanthrene	Total	0.45	1	0.001	0.005	µg/L	0.5	0	90	67 - 127%	PASS	
Pyrene	Total	0.425	1	0.001	0.005	µg/L	0.5	0	85	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: 99172-BS2		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:			Received:			
		Method: EPA 625.1			Batch ID: O-38084			Prepared: 15-Aug-22			Analyzed: 20-Aug-22			
(d10-Acenaphthene)	Total	92	1			% Recovery	100	0	92	65 - 113%	PASS	6	30	PASS
(d10-Phenanthrene)	Total	98	1			% Recovery	100	0	98	80 - 111%	PASS	7	30	PASS
(d12-Chrysene)	Total	88	1			% Recovery	100	0	88	60 - 139%	PASS	5	30	PASS
(d12-Perylene)	Total	95	1			% Recovery	100	0	95	36 - 161%	PASS	10	30	PASS
(d8-Naphthalene)	Total	90	1			% Recovery	100	0	90	44 - 119%	PASS	11	30	PASS
1-Methylnaphthalene	Total	0.442	1	0.001	0.005	µg/L	0.5	0	88	49 - 117%	PASS	6	30	PASS
1-Methylphenanthrene	Total	0.443	1	0.001	0.005	µg/L	0.5	0	89	66 - 127%	PASS	2	30	PASS
2,3,5-Trimethylnaphthalene	Total	0.45	1	0.001	0.005	µg/L	0.5	0	90	57 - 120%	PASS	6	30	PASS
2,6-Dimethylnaphthalene	Total	0.44	1	0.001	0.005	µg/L	0.5	0	88	54 - 117%	PASS	6	30	PASS
2-Methylnaphthalene	Total	0.439	1	0.001	0.005	µg/L	0.5	0	88	47 - 130%	PASS	7	30	PASS
Acenaphthene	Total	0.449	1	0.001	0.005	µg/L	0.5	0	90	53 - 131%	PASS	6	30	PASS
Acenaphthylene	Total	0.449	1	0.001	0.005	µg/L	0.5	0	90	43 - 140%	PASS	7	30	PASS
Anthracene	Total	0.427	1	0.001	0.005	µg/L	0.5	0	85	58 - 135%	PASS	6	30	PASS
Benz[a]anthracene	Total	0.387	1	0.001	0.005	µg/L	0.5	0	77	55 - 145%	PASS	5	30	PASS
Benzo[a]pyrene	Total	0.447	1	0.001	0.005	µg/L	0.5	0	89	51 - 143%	PASS	11	30	PASS
Benzo[b]fluoranthene	Total	0.472	1	0.001	0.005	µg/L	0.5	0	94	46 - 165%	PASS	5	30	PASS
Benzo[e]pyrene	Total	0.453	1	0.001	0.005	µg/L	0.5	0	91	42 - 152%	PASS	7	30	PASS
Benzo[g,h,i]perylene	Total	0.465	1	0.001	0.005	µg/L	0.5	0	93	63 - 133%	PASS	4	30	PASS
Benzo[k]fluoranthene	Total	0.468	1	0.001	0.005	µg/L	0.5	0	94	56 - 145%	PASS	10	30	PASS
Biphenyl	Total	0.455	1	0.001	0.005	µg/L	0.5	0	91	56 - 119%	PASS	8	30	PASS
Chrysene	Total	0.4	1	0.001	0.005	µg/L	0.5	0	80	56 - 141%	PASS	4	30	PASS
Dibenz[a,h]anthracene	Total	0.439	1	0.001	0.005	µg/L	0.5	0	88	55 - 150%	PASS	8	30	PASS
Dibenzo[a,l]pyrene	Total	0.512	1	0.001	0.005	µg/L	0.5	0	102	50 - 150%	PASS	2	30	PASS
Dibenzothiophene	Total	0.461	1	0.001	0.005	µg/L	0.5	0	92	75 - 113%	PASS	6	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		
Fluoranthene	Total	0.459	1	0.001	0.005	µg/L	0.5	0	92	60 - 146%	PASS	4	30	PASS
Fluorene	Total	0.449	1	0.001	0.005	µg/L	0.5	0	90	58 - 131%	PASS	5	30	PASS
Indeno[1,2,3-cd]pyrene	Total	0.442	1	0.001	0.005	µg/L	0.5	0	88	50 - 151%	PASS	6	30	PASS
Naphthalene	Total	0.437	1	0.001	0.005	µg/L	0.5	0	87	41 - 126%	PASS	8	30	PASS
Perylene	Total	0.428	1	0.001	0.005	µg/L	0.5	0	86	48 - 141%	PASS	7	30	PASS
Phenanthrene	Total	0.47	1	0.001	0.005	µg/L	0.5	0	94	67 - 127%	PASS	4	30	PASS
Pyrene	Total	0.443	1	0.001	0.005	µg/L	0.5	0	89	54 - 156%	PASS	5	30	PASS

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PHYSICS

TENTATIVELY

IDENTIFIED COMPOUNDS

ENVIRONMENTAL LABORATORIES, INC.

Innovative Solutions for Nature

Sample ID: 99173

RT	Area Pct	Concentration (ng/L)	Library/ID	Cas Number	Match Qual
31.6341	6.2554	1111	Anthracene-D10-	1517-22-2	91
42.1441	1.9176	341	Terephthalic acid, isobutyl butyl ester	1000323-56-2	94
14.3851	0.8815	157	Cyclohexane, 1,2,4,5-tetraethyl-, (1.alpha.,2.alpha.,4.alpha.,5.alpha.)-	61142-24-3	82
63.5296	0.6673	119	1,4-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester	6422-86-2	97

Concentration estimated using the response for Anthracene-d10

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Sample ID: Lab Blank Batch O-38084

RT	Area Pct	Concentration (ng/L)	Library/ID	Cas Number	Match Qual
31.6482	4.7930	1111	Anthracene-D10-	1719-06-8	95
42.1583	1.5901	369	Terephthalic acid, isobutyl butyl ester	1000323-56-2	95
14.3915	0.6801	158	3-Hexene, 3-ethyl-2,5-dimethyl-	62338-08-3	83
63.5413	0.4564	106	1,4-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester	6422-86-2	95

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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Project Iteration ID: 1407003-272
 Client Name: Eurofins Eaton Analytical
 Project Name: RED-HILL Project # 38001111
 Job # 380-15929-1
 COC Page Number: 2 of 2
 Bottle Label Color: NA

Sample Receipt Summary

Receiving Info

1. Initials Received By: YJ
2. Date Received: 8/12/22
3. Time Received: 1254
4. Client Name: Eurofins
5. Courier Information: (Please circle)
 - Client
 - UPS
 - Area Fast
 - DRS
 - FedEx
 - GSO/GLS
 - Ontrac
 - PAMS
 - PHYSIS Driver:
 - i. Start Time: _____
 - ii. End Time: _____
 - iii. Total Mileage: _____
 - iv. Number of Pickups: _____
6. Container Information: (Please put the # of containers or circle none)
 - Cooler
 - Styrofoam Cooler
 - Boxes
 - None
 - Carboy(s)
 - Carboy Trash Can(s)
 - Carboy Cap(s)
 - Other _____
7. What type of ice was used: (Please circle any that apply)
 - Wet Ice
 - Blue Ice
 - Dry Ice
 - Water
 - None
8. Randomly Selected Samples Temperature (°C): 3.9
 Used I/R Thermometer # 1-2

Inspection Info

1. Initials Inspected By: RGH

Sample Integrity Upon Receipt:

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

Notes:

Monrovia, CA (Suite 100)

750 Royal Oaks Drive Suite 100

Monrovia, CA 91016

Phone: 626-386-1100

Chain of Custody Record



Environmental Services
California

Client Information		Sampler:		Lab PM:		Carrier Tracking No(s):		COC No:							
Client Contact: Dr. Ron Fenstermacher		Phone:		Frank, Debbie L		E-Mail:		380-9747-2757.1							
Company: City & County of Honolulu		PWSID:		State of Origin:		Page: 1 of 3		Page 1 of 3 - 102							
Address: 630 South Beretania Street Chemistry Lab		Dus Date Requested:		Analysis Requested Field Filtered Sample (Yes or No) Perform MS/MSD (Yes/No) SUBCONTRACT - 625 PAH Physis LL (EAL) + TICs SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL) SUBCONTRACT - 8015 Diesel LL (EAL) and Motor Oil 525.2_PREC - (MOD) 525plus Plus TICs SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)						Job #:					
City: Honolulu		TAT Requested (days):								Preservation Codes:					
State, Zip: HI, 96843		Compliance Project: Δ Yes Δ No								A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA		M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-S Y - Trizma Z - other (specify)			
Phone: 808-748-5091(Tel)		PO #: C20525101 exp 05312023								Other:					
Email: RFENSTEMACHER@hbws.org		WO #:								Total Number of containers					
Project Name: RED-HILL/HBWS Sites Event Desc: RUSH Weekly Red Hill		Project #: 38001111		Special Instructions/Note: 380-15929 COC Unit 1 Temp Blank: 1 °C											
Site: Hawaii		SSOW#:													
Sample Identification		Sample Date								Sample Time		Sample Type (C=comp, G=grab)		Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	
														Preservation Code:	
AIEA GULCH WELLS PUMP 1 (331-201-TP071)														Water	
AIEA GULCH WELLS PUMP 2 (331-202-TP072)														Water	
AIEA WELLS PUMPS1&2(260)331-203-TP400														Water	
HALAWA SHAFT (331-241-TP401)														Water	
HALAWA WELLS UNITS 1&2(331-206-TP065) 331-023		8-10-2022								0935		G		Water	
MOANALUA WELLS (331-223-TP202)														Water	
AIEA GULCH WELLS PUMP 1 (331-201-TP071)								Water							
AIEA GULCH WELLS PUMP 2 (331-202-TP072)								Water							
AIEA WELLS PUMPS1&2(260)331-203-TP400								Water							
HALAWA SHAFT (331-241-TP401)								Water							
HALAWA WELLS UNITS1&2(331-206-TP065)								Water							
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: <i>Lesli Leanni</i>		Date/Time: <i>8-10-2022 1200</i>		Company: <i>BWS</i>		Received by: <i>G. RETTNER</i>		Date/Time: <i>08/11/2022 10:10</i>							
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:							
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:							
Custody Seals Intact: Δ Yes Δ No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:											

Ver: 06/08/2021

Bottle Order Information

Bottle Order: RUSH RED-HILL WEEKLY
 Bottle Order #: 2757
 Request From Client: 7/20/2022
 Date Order Posted: 7/20/2022 11:12:54AM
 Order Status: Ready To Process
 Prepared By: Davis Haley
 Deliver By Date: 7/25/2022 11:59:00PM
 Lab Project Number: 38001111
 PWSID: HI0000331

Order Completion Information

Creator: Davis Haley
 Filled by:
 Sent Date:
 Sent Via:
 Tracking #:

Page 2 of 2

Sets	Bottles/Set	Qty	Bottle Type Description	Preservative	Method	Matrix	Sample Type	Comments	Lot #
6	4	24	Amber Glass 1 liter - Sodium Thiosulfate	Sodium Thiosulfate	SUBCONTRACT - 625 PAH Physis LL (EAL) + TICs <i> </i>	Water	Normal	625 PAH + MS/MSD Volume	
6	4	24	Voa Vial 40ml - SodiumThio w/HCl-dropper	Sodium Thiosulfate	SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL) <i> </i>	Water	Normal		
6	2	12	Amber Glass 1 L - NaThiosulfate 8mL HCL	Sodium Thiosulfate/Hydrochloric Acid	SUBCONTRACT - 8015 Diesel LL (EAL) and Motor Oil <i> </i>	Water	Normal		
6	2	12	Amber Glass 1 Liter- Sodium Sulfite/HCl	Sodium Sulfite w/HCl	525.2_PREC - (MOD) 525plus Plus TICs <i> </i>	Water	Normal		
6	<i>0</i>	0	VOA Vial 40mL - NaThiosulfate/HCL	Sodium Thiosulfate/Hydrochloric Acid	SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)	Water	Trip Blank		

Total Bottle Summary		
Bottle Type Description	Preservative	Bottle Count
Amber Glass 1 L - NaThiosulfate 8mL HCL	Sodium Thiosulfate/Hydrochloric Acid	12
Amber Glass 1 liter - Sodium Thiosulfate	Sodium Thiosulfate	24
Amber Glass 1 Liter- Sodium Sulfite/HCl	Sodium Sulfite w/HCl	12
VOA Vial 40mL - NaThiosulfate/HCL	Sodium Thiosulfate/Hydrochloric Acid	0
Voa Vial 40ml - SodiumThio w/HCl-dropper	Sodium Thiosulfate	24
Total Bottles:		72

Please notify your PM immediately if an error is found in shipment. When returning samples, please return all provided QC samples.

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

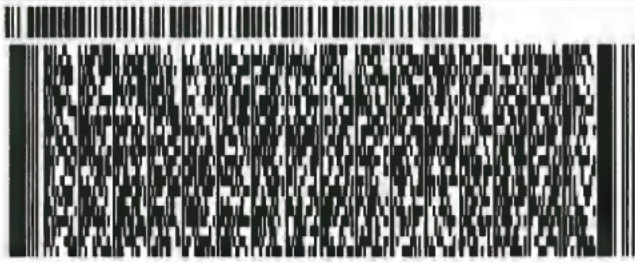
SHIP DATE: 10AUG22
ACTWGT: 75.00 LB
CAD: 100205419/INET4490

BILL RECIPIENT

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

581.LZF39DIFEAA

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

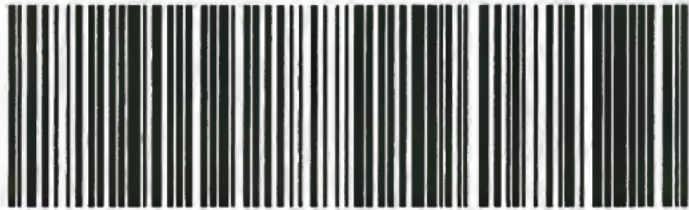


THU - 11 AUG 10:30A
PRIORITY OVERNIGHT

TRK# 7776 2939 1947
0201

WZ WHPA

91016
CA-US BUR

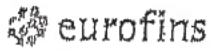


After printing this label:

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

EEA Folder Number:

SAMPLE TEMP RECEIVED:
Notes: If samples are out of temperature range, let the ASMs know. ASMs will determine whether to proceed with analysis or not.
SAMPLES REC'D DAY OF COLLECTION? Yes / No

IR Gun ID = 649A (Observation = 5.0 °C) (Corr. Factor -0.3 °C) (Final = 4.7 °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, ≤8°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 VOA and Radon Internal COFC for additional bottles)

Exempt from headspace concerns: Methods 816.4, HAA(8261,562), 808, 8PME, @CH, 832LCMS, 868, 838, Anstoxin, LCMS methods using 40 ml vials, International clients:

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): _____

SIGNATURE	PRINT NAME	COMPANY/TITLE	DATE	TIME
	G. REITNER	Eurofins Eaton Analytical	08/11/2022	10:10
SIGNATURE	PRINT NAME	COMPANY/TITLE	DATE	TIME
	G. REITNER	Eurofins Eaton Analytical	08/11/2022	15:29

Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-15929-1

Login Number: 15929
List Number: 1
Creator: Segura, Ryan

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	

