

ANALYTICAL REPORT

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Laboratory Job ID: 380-22874-1
Client Project/Site: 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:
11/4/2022 8:32:46 PM

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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
11/4/2022 8:32:46 PM

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2
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4
5
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11
12
13
14
15
16
17



Table of Contents

Cover Page	1
Table of Contents	3
Definitions/Glossary	4
Case Narrative	5
Detection Summary	6
Client Sample Results	7
Action Limit Summary	11
Surrogate Summary	12
QC Sample Results	15
QC Association Summary	30
Lab Chronicle	32
Certification Summary	33
Method Summary	35
Sample Summary	36
Subcontract Data	37
Chain of Custody	85
Receipt Checklists	89

Definitions/Glossary

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

Job ID: 380-22874-1

Qualifiers

GC/MS Semi VOA

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

Case Narrative

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

Job ID: 380-22874-1

Job ID: 380-22874-1

Laboratory: Eurofins Eaton Monrovia

Narrative

Job Narrative 380-22874-1

Comments

No additional comments.

Receipt

The samples were received on 10/4/2022 10:20 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 4.9° 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.

Subcontract Work

Methods 8015 Diesel LL (EAL) and Motor Oil, 8015 Gas (Purgeable) LL (EAL): These methods were subcontracted to EMAX Laboratories Inc. The subcontract laboratory certifications are different from that of the facility issuing the final report.

Method 625 PAH Physis LL (EAL) + TICs: This method was subcontracted to Physis Environmental Laboratories. The subcontract laboratory certification is different from that of the facility issuing the final report.



Detection Summary

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

Job ID: 380-22874-1

Client Sample ID: HALAWA WELLS UNIT 1 331-023

Lab Sample ID: 380-22874-1

No Detections.

Client Sample ID: TB HALAWA WELLS UNIT 1 331-023

Lab Sample ID: 380-22874-2

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins Eaton Monrovia

Client Sample Results

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

Job ID: 380-22874-1

Client Sample ID: HALAWA WELLS UNIT 1 331-023

Lab Sample ID: 380-22874-1

Date Collected: 10/03/22 10:10

Matrix: Water

Date Received: 10/04/22 10:20

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		0.098	ug/L		10/05/22 09:03	10/06/22 19:46	1
2,4'-DDE	ND		0.098	ug/L		10/05/22 09:03	10/06/22 19:46	1
2,4'-DDT	ND		0.098	ug/L		10/05/22 09:03	10/06/22 19:46	1
2,4-Dinitrotoluene	ND		0.098	ug/L		10/05/22 09:03	10/06/22 19:46	1
2,6-Dinitrotoluene	ND		0.098	ug/L		10/05/22 09:03	10/06/22 19:46	1
4,4'-DDD	ND		0.098	ug/L		10/05/22 09:03	10/06/22 19:46	1
4,4'-DDE	ND		0.098	ug/L		10/05/22 09:03	10/06/22 19:46	1
4,4'-DDT	ND		0.098	ug/L		10/05/22 09:03	10/06/22 19:46	1
Acenaphthene	ND		0.098	ug/L		10/05/22 09:03	10/06/22 19:46	1
Acenaphthylene	ND		0.098	ug/L		10/05/22 09:03	10/06/22 19:46	1
Acetochlor	ND		0.098	ug/L		10/05/22 09:03	10/06/22 19:46	1
Alachlor	ND		0.049	ug/L		10/05/22 09:03	10/06/22 19:46	1
alpha-BHC	ND		0.098	ug/L		10/05/22 09:03	10/06/22 19:46	1
alpha-Chlordane	ND		0.049	ug/L		10/05/22 09:03	10/06/22 19:46	1
Anthracene	ND		0.020	ug/L		10/05/22 09:03	10/06/22 19:46	1
Atrazine	ND		0.049	ug/L		10/05/22 09:03	10/06/22 19:46	1
Benz(a)anthracene	ND		0.049	ug/L		10/05/22 09:03	10/06/22 19:46	1
Benzo[a]pyrene	ND		0.020	ug/L		10/05/22 09:03	10/06/22 19:46	1
Benzo[b]fluoranthene	ND		0.020	ug/L		10/05/22 09:03	10/06/22 19:46	1
Benzo[g,h,i]perylene	ND		0.049	ug/L		10/05/22 09:03	10/06/22 19:46	1
Benzo[k]fluoranthene	ND		0.020	ug/L		10/05/22 09:03	10/06/22 19:46	1
beta-BHC	ND		0.098	ug/L		10/05/22 09:03	10/06/22 19:46	1
Bis(2-ethylhexyl) phthalate	ND		0.59	ug/L		10/05/22 09:03	10/06/22 19:46	1
Bromacil	ND		0.098	ug/L		10/05/22 09:03	10/06/22 19:46	1
Butachlor	ND		0.049	ug/L		10/05/22 09:03	10/06/22 19:46	1
Butylbenzylphthalate	ND		0.49	ug/L		10/05/22 09:03	10/06/22 19:46	1
Caffeine	ND		0.049	ug/L		10/05/22 09:03	10/06/22 19:46	1
Chlorobenzilate	ND		0.098	ug/L		10/05/22 09:03	10/06/22 19:46	1
Chloroneb	ND		0.098	ug/L		10/05/22 09:03	10/06/22 19:46	1
Chlorothalonil (Draconil, Bravo)	ND		0.098	ug/L		10/05/22 09:03	10/06/22 19:46	1
Chlorpyrifos	ND		0.049	ug/L		10/05/22 09:03	10/06/22 19:46	1
Chrysene	ND		0.020	ug/L		10/05/22 09:03	10/06/22 19:46	1
delta-BHC	ND		0.098	ug/L		10/05/22 09:03	10/06/22 19:46	1
Di(2-ethylhexyl)adipate	ND		0.59	ug/L		10/05/22 09:03	10/06/22 19:46	1
Diazinon (Qualitative)	ND		0.098	ug/L		10/05/22 09:03	10/06/22 19:46	1
Dibenz(a,h)anthracene	ND		0.049	ug/L		10/05/22 09:03	10/06/22 19:46	1
Diclorvos (DDVP)	ND		0.049	ug/L		10/05/22 09:03	10/06/22 19:46	1
Dieldrin	ND		0.20	ug/L		10/05/22 09:03	10/06/22 19:46	1
Diethylphthalate	ND		0.49	ug/L		10/05/22 09:03	10/06/22 19:46	1
Dimethoate	ND		0.098	ug/L		10/05/22 09:03	10/06/22 19:46	1
Dimethylphthalate	ND		0.49	ug/L		10/05/22 09:03	10/06/22 19:46	1
Di-n-butyl phthalate	ND		0.98	ug/L		10/05/22 09:03	10/06/22 19:46	1
Di-n-octyl phthalate	ND		0.098	ug/L		10/05/22 09:03	10/06/22 19:46	1
Endosulfan I (Alpha)	ND		0.098	ug/L		10/05/22 09:03	10/06/22 19:46	1
Endosulfan II (Beta)	ND		0.098	ug/L		10/05/22 09:03	10/06/22 19:46	1
Endosulfan sulfate	ND		0.098	ug/L		10/05/22 09:03	10/06/22 19:46	1
Endrin	ND		0.098	ug/L		10/05/22 09:03	10/06/22 19:46	1
Endrin aldehyde	ND		0.098	ug/L		10/05/22 09:03	10/06/22 19:46	1
EPTC	ND		0.098	ug/L		10/05/22 09:03	10/06/22 19:46	1

Eurofins Eaton Monrovia

Client Sample Results

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

Job ID: 380-22874-1

Client Sample ID: HALAWA WELLS UNIT 1 331-023

Lab Sample ID: 380-22874-1

Date Collected: 10/03/22 10:10

Matrix: Water

Date Received: 10/04/22 10:20

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoranthene	ND		0.098	ug/L		10/05/22 09:03	10/06/22 19:46	1
Fluorene	ND		0.049	ug/L		10/05/22 09:03	10/06/22 19:46	1
gamma-BHC (Lindane)	ND		0.039	ug/L		10/05/22 09:03	10/06/22 19:46	1
gamma-Chlordane	ND		0.049	ug/L		10/05/22 09:03	10/06/22 19:46	1
Heptachlor	ND		0.039	ug/L		10/05/22 09:03	10/06/22 19:46	1
Heptachlor epoxide (isomer B)	ND		0.049	ug/L		10/05/22 09:03	10/06/22 19:46	1
Hexachlorobenzene	ND		0.049	ug/L		10/05/22 09:03	10/06/22 19:46	1
Hexachlorocyclopentadiene	ND		0.049	ug/L		10/05/22 09:03	10/06/22 19:46	1
Indeno[1,2,3-cd]pyrene	ND		0.049	ug/L		10/05/22 09:03	10/06/22 19:46	1
Isophorone	ND		0.49	ug/L		10/05/22 09:03	10/06/22 19:46	1
Malathion	ND		0.098	ug/L		10/05/22 09:03	10/06/22 19:46	1
Methoxychlor	ND		0.098	ug/L		10/05/22 09:03	10/06/22 19:46	1
Metolachlor	ND		0.049	ug/L		10/05/22 09:03	10/06/22 19:46	1
Metribuzin	ND		0.049	ug/L		10/05/22 09:03	10/06/22 19:46	1
Molinate	ND		0.098	ug/L		10/05/22 09:03	10/06/22 19:46	1
Naphthalene	ND		0.29	ug/L		10/05/22 09:03	10/06/22 19:46	1
Parathion	ND		0.098	ug/L		10/05/22 09:03	10/06/22 19:46	1
Pendimethalin (Penoxaline)	ND		0.098	ug/L		10/05/22 09:03	10/06/22 19:46	1
Phenanthrene	ND		0.039	ug/L		10/05/22 09:03	10/06/22 19:46	1
Propachlor	ND		0.049	ug/L		10/05/22 09:03	10/06/22 19:46	1
Pyrene	ND		0.049	ug/L		10/05/22 09:03	10/06/22 19:46	1
Simazine	ND		0.049	ug/L		10/05/22 09:03	10/06/22 19:46	1
Terbacil	ND		0.098	ug/L		10/05/22 09:03	10/06/22 19:46	1
Terbuthylazine	ND		0.098	ug/L		10/05/22 09:03	10/06/22 19:46	1
Thiobencarb	ND		0.20	ug/L		10/05/22 09:03	10/06/22 19:46	1
Total Permethrin (mixed isomers)	ND		0.20	ug/L		10/05/22 09:03	10/06/22 19:46	1
trans-Nonachlor	ND		0.049	ug/L		10/05/22 09:03	10/06/22 19:46	1
Trifluralin	ND		0.098	ug/L		10/05/22 09:03	10/06/22 19:46	1
1-Methylnaphthalene	ND		0.098	ug/L		10/05/22 09:03	10/06/22 19:46	1
2-Methylnaphthalene	ND		0.098	ug/L		10/05/22 09:03	10/06/22 19:46	1

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Nonadecane	0.52	T J N	ug/L		2.76	629-92-5	10/05/22 09:03	10/06/22 19:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	100		70 - 130	10/05/22 09:03	10/06/22 19:46	1
Perylene-d12	95		70 - 130	10/05/22 09:03	10/06/22 19:46	1
Triphenylphosphate	104		70 - 130	10/05/22 09:03	10/06/22 19:46	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		0.005	0.001	µg/L		10/06/22 00:00	10/09/22 16:22	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		10/06/22 00:00	10/09/22 16:22	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		10/06/22 00:00	10/09/22 16:22	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		10/06/22 00:00	10/09/22 16:22	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		10/06/22 00:00	10/09/22 16:22	1
Acenaphthene	ND		0.005	0.001	µg/L		10/06/22 00:00	10/09/22 16:22	1
Acenaphthylene	ND		0.005	0.001	µg/L		10/06/22 00:00	10/09/22 16:22	1
Anthracene	ND		0.005	0.001	µg/L		10/06/22 00:00	10/09/22 16:22	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		10/06/22 00:00	10/09/22 16:22	1

Eurofins Eaton Monrovia

Client Sample Results

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

Job ID: 380-22874-1

Client Sample ID: HALAWA WELLS UNIT 1 331-023

Lab Sample ID: 380-22874-1

Date Collected: 10/03/22 10:10

Matrix: Water

Date Received: 10/04/22 10:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]pyrene	ND		0.005	0.001	µg/L		10/06/22 00:00	10/09/22 16:22	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		10/06/22 00:00	10/09/22 16:22	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		10/06/22 00:00	10/09/22 16:22	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		10/06/22 00:00	10/09/22 16:22	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		10/06/22 00:00	10/09/22 16:22	1
Biphenyl	ND		0.005	0.001	µg/L		10/06/22 00:00	10/09/22 16:22	1
Chrysene	ND		0.005	0.001	µg/L		10/06/22 00:00	10/09/22 16:22	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		10/06/22 00:00	10/09/22 16:22	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		10/06/22 00:00	10/09/22 16:22	1
Dibenzothiophene	ND		0.005	0.001	µg/L		10/06/22 00:00	10/09/22 16:22	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		10/06/22 00:00	10/09/22 16:22	1
Fluoranthene	ND		0.005	0.001	µg/L		10/06/22 00:00	10/09/22 16:22	1
Fluorene	ND		0.005	0.001	µg/L		10/06/22 00:00	10/09/22 16:22	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		10/06/22 00:00	10/09/22 16:22	1
Naphthalene	ND		0.005	0.001	µg/L		10/06/22 00:00	10/09/22 16:22	1
Perylene	ND		0.005	0.001	µg/L		10/06/22 00:00	10/09/22 16:22	1
Phenanthrene	ND		0.005	0.001	µg/L		10/06/22 00:00	10/09/22 16:22	1
Pyrene	ND		0.005	0.001	µg/L		10/06/22 00:00	10/09/22 16:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	85		45 - 118	10/06/22 00:00	10/09/22 16:22	1
(d10-Phenanthrene)	91		56 - 123	10/06/22 00:00	10/09/22 16:22	1
(d12-Chrysene)	90		36 - 142	10/06/22 00:00	10/09/22 16:22	1
(d12-Perylene)	91		36 - 161	10/06/22 00:00	10/09/22 16:22	1
(d8-Naphthalene)	95		20 - 112	10/06/22 00:00	10/09/22 16:22	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DIESEL	ND	U	0.029		mg/L			10/17/22 14:04	1
MOTOR OIL	ND	U	0.058		mg/L			10/17/22 14:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
BROMOBENZENE	104		60 - 130		10/17/22 14:04	1
HEXACOSANE	88		60 - 130		10/17/22 14:04	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GASOLINE	ND	U	0.02		mg/L			10/08/22 15:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
BROMOFLUOROBENZENE	93		60 - 140		10/08/22 15:22	1

Client Sample ID: TB HALAWA WELLS UNIT 1 331-023

Lab Sample ID: 380-22874-2

Date Collected: 10/03/22 10:10

Matrix: Water

Date Received: 10/04/22 10:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GASOLINE	ND	U	0.02		mg/L			10/08/22 15:56	1

Client Sample Results

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

Job ID: 380-22874-1

Client Sample ID: TB HALAWA WELLS UNIT 1 331-023

Lab Sample ID: 380-22874-2

Date Collected: 10/03/22 10:10

Matrix: Water

Date Received: 10/04/22 10:20

<u>Surrogate</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
BROMOFLUOROBENZENE	95		60 - 140		10/08/22 15:56	1

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Action Limit Summary

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

Job ID: 380-22874-1

Client Sample ID: HALAWA WELLS UNIT 1 331-023

Lab Sample ID: 380-22874-1

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
Bis(2-ethylhexyl) phthalate	ND		ug/L	6	0.59	525.2	Total/NA
Di(2-ethylhexyl)adipate	ND		ug/L	400	0.59	525.2	Total/NA
Endrin	ND		ug/L	2	0.098	525.2	Total/NA
gamma-BHC (Lindane)	ND		ug/L	0.2	0.039	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
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: 380-22874-1

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)	PRY (70-130)	TPP (70-130)
380-22076-D-1-B DU	Duplicate	96	93	103
380-22081-B-2-B MS	Matrix Spike	99	98	108
380-22874-1	HALAWA WELLS UNIT 1 331-023	100	95	104
LCS 380-19592/3-A	Lab Control Sample	98	98	105
LCSD 380-19592/4-A	Lab Control Sample Dup	98	98	109
MB 380-19592/1-A	Method Blank	92	90	106
MRL 380-19592/2-A	Lab Control Sample	94	84	106

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

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

Matrix: BlankMatrix

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)				
		Acenaphtl (65-113)	Phenanth (80-111)	CRY (60-139)	NPT (44-119)	PRY (36-161)
100571-B1	Method Blank	88	92	88	105	83
100571-BS1	Lab Control Sample	90	94	92	106	96
100571-BS2	Lab Control Sample Dup	89	93	87	104	94

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

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)				
		Acenaphtl (45-118)	Phenanth (56-123)	CRY (36-142)	NPT (20-112)	PRY (36-161)
380-22874-1	HALAWA WELLS UNIT 1 331-02	85	91	90	95	91

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

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		BB (60-130)	XACOSA (60-130)
380-22874-1	HALAWA WELLS UNIT 1 331-02	104	88

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Surrogate Summary

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

Job ID: 380-22874-1

Surrogate Legend

BB = BROMOBENZENE
 HEXACOSANE = HEXACOSANE

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

Matrix: WATER

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

BB XACOSAI

Lab Sample ID	Client Sample ID
22DSJ032WB	Method Blank

Surrogate Legend

BB = BROMOBENZENE
 HEXACOSANE = HEXACOSANE

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

Matrix: WATER

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

BB XACOSAI
 (60-130) (60-130)

Lab Sample ID	Client Sample ID
22DSJ032WL	Lab Control Sample

100 94

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)

BFB
 (60-140)

Lab Sample ID	Client Sample ID
380-22874-1	HALAWA WELLS UNIT 1 331-02
380-22874-2	TB HALAWA WELLS UNIT 1 331-023

93
95

Surrogate Legend

BFB = BROMOFLUOROBENZENE

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

Matrix: WATER

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

BFB

Lab Sample ID	Client Sample ID
22VGH7J02B	Method Blank

Surrogate Legend

BFB = BROMOFLUOROBENZENE

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

Matrix: WATER

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

BFB
 (70-130)

Lab Sample ID	Client Sample ID
22VGH7J02C	LCD
22VGH7J02L	Lab Control Sample

115
108

Surrogate Summary

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

Job ID: 380-22874-1

Surrogate Legend

BFB = BROMOFLUOROBENZENE

1

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QC Sample Results

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

Job ID: 380-22874-1

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

Lab Sample ID: MB 380-19592/1-A
Matrix: Water
Analysis Batch: 19817

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 19592

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		0.10	ug/L		10/05/22 09:03	10/06/22 13:45	1
2,4'-DDE	ND		0.10	ug/L		10/05/22 09:03	10/06/22 13:45	1
2,4'-DDT	ND		0.10	ug/L		10/05/22 09:03	10/06/22 13:45	1
2,4-Dinitrotoluene	ND		0.10	ug/L		10/05/22 09:03	10/06/22 13:45	1
2,6-Dinitrotoluene	ND		0.10	ug/L		10/05/22 09:03	10/06/22 13:45	1
4,4'-DDD	ND		0.10	ug/L		10/05/22 09:03	10/06/22 13:45	1
4,4'-DDE	ND		0.10	ug/L		10/05/22 09:03	10/06/22 13:45	1
4,4'-DDT	ND		0.10	ug/L		10/05/22 09:03	10/06/22 13:45	1
Acenaphthene	ND		0.10	ug/L		10/05/22 09:03	10/06/22 13:45	1
Acenaphthylene	ND		0.10	ug/L		10/05/22 09:03	10/06/22 13:45	1
Acetochlor	ND		0.10	ug/L		10/05/22 09:03	10/06/22 13:45	1
Alachlor	ND		0.050	ug/L		10/05/22 09:03	10/06/22 13:45	1
alpha-BHC	ND		0.10	ug/L		10/05/22 09:03	10/06/22 13:45	1
alpha-Chlordane	ND		0.050	ug/L		10/05/22 09:03	10/06/22 13:45	1
Anthracene	ND		0.020	ug/L		10/05/22 09:03	10/06/22 13:45	1
Atrazine	ND		0.050	ug/L		10/05/22 09:03	10/06/22 13:45	1
Benz(a)anthracene	ND		0.050	ug/L		10/05/22 09:03	10/06/22 13:45	1
Benzo[a]pyrene	ND		0.020	ug/L		10/05/22 09:03	10/06/22 13:45	1
Benzo[b]fluoranthene	ND		0.020	ug/L		10/05/22 09:03	10/06/22 13:45	1
Benzo[g,h,i]perylene	ND		0.050	ug/L		10/05/22 09:03	10/06/22 13:45	1
Benzo[k]fluoranthene	ND		0.020	ug/L		10/05/22 09:03	10/06/22 13:45	1
beta-BHC	ND		0.10	ug/L		10/05/22 09:03	10/06/22 13:45	1
Bis(2-ethylhexyl) phthalate	ND		0.60	ug/L		10/05/22 09:03	10/06/22 13:45	1
Bromacil	ND		0.10	ug/L		10/05/22 09:03	10/06/22 13:45	1
Butachlor	ND		0.050	ug/L		10/05/22 09:03	10/06/22 13:45	1
Butylbenzylphthalate	ND		0.50	ug/L		10/05/22 09:03	10/06/22 13:45	1
Caffeine	ND		0.050	ug/L		10/05/22 09:03	10/06/22 13:45	1
Chlorobenzilate	ND		0.10	ug/L		10/05/22 09:03	10/06/22 13:45	1
Chloroneb	ND		0.10	ug/L		10/05/22 09:03	10/06/22 13:45	1
Chlorothalonil (Draconil, Bravo)	ND		0.10	ug/L		10/05/22 09:03	10/06/22 13:45	1
Chlorpyrifos	ND		0.050	ug/L		10/05/22 09:03	10/06/22 13:45	1
Chrysene	ND		0.020	ug/L		10/05/22 09:03	10/06/22 13:45	1
delta-BHC	ND		0.10	ug/L		10/05/22 09:03	10/06/22 13:45	1
Di(2-ethylhexyl)adipate	ND		0.60	ug/L		10/05/22 09:03	10/06/22 13:45	1
Diazinon (Qualitative)	ND		0.10	ug/L		10/05/22 09:03	10/06/22 13:45	1
Dibenz(a,h)anthracene	ND		0.050	ug/L		10/05/22 09:03	10/06/22 13:45	1
Diclorvos (DDVP)	ND		0.050	ug/L		10/05/22 09:03	10/06/22 13:45	1
Dieldrin	ND		0.20	ug/L		10/05/22 09:03	10/06/22 13:45	1
Diethylphthalate	ND		0.50	ug/L		10/05/22 09:03	10/06/22 13:45	1
Dimethoate	ND		0.10	ug/L		10/05/22 09:03	10/06/22 13:45	1
Dimethylphthalate	ND		0.50	ug/L		10/05/22 09:03	10/06/22 13:45	1
Di-n-butyl phthalate	ND		1.0	ug/L		10/05/22 09:03	10/06/22 13:45	1
Di-n-octyl phthalate	ND		0.10	ug/L		10/05/22 09:03	10/06/22 13:45	1
Endosulfan I (Alpha)	ND		0.10	ug/L		10/05/22 09:03	10/06/22 13:45	1
Endosulfan II (Beta)	ND		0.10	ug/L		10/05/22 09:03	10/06/22 13:45	1
Endosulfan sulfate	ND		0.10	ug/L		10/05/22 09:03	10/06/22 13:45	1
Endrin	ND		0.10	ug/L		10/05/22 09:03	10/06/22 13:45	1
Endrin aldehyde	ND		0.10	ug/L		10/05/22 09:03	10/06/22 13:45	1

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QC Sample Results

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

Job ID: 380-22874-1

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

Lab Sample ID: MB 380-19592/1-A
Matrix: Water
Analysis Batch: 19817

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 19592

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
EPTC	ND		0.10	ug/L		10/05/22 09:03	10/06/22 13:45	1
Fluoranthene	ND		0.10	ug/L		10/05/22 09:03	10/06/22 13:45	1
Fluorene	ND		0.050	ug/L		10/05/22 09:03	10/06/22 13:45	1
gamma-BHC (Lindane)	ND		0.040	ug/L		10/05/22 09:03	10/06/22 13:45	1
gamma-Chlordane	ND		0.050	ug/L		10/05/22 09:03	10/06/22 13:45	1
Heptachlor	ND		0.040	ug/L		10/05/22 09:03	10/06/22 13:45	1
Heptachlor epoxide (isomer B)	ND		0.050	ug/L		10/05/22 09:03	10/06/22 13:45	1
Hexachlorobenzene	ND		0.050	ug/L		10/05/22 09:03	10/06/22 13:45	1
Hexachlorocyclopentadiene	ND		0.050	ug/L		10/05/22 09:03	10/06/22 13:45	1
Indeno[1,2,3-cd]pyrene	ND		0.050	ug/L		10/05/22 09:03	10/06/22 13:45	1
Isophorone	ND		0.50	ug/L		10/05/22 09:03	10/06/22 13:45	1
Malathion	ND		0.10	ug/L		10/05/22 09:03	10/06/22 13:45	1
Methoxychlor	ND		0.10	ug/L		10/05/22 09:03	10/06/22 13:45	1
Metolachlor	ND		0.050	ug/L		10/05/22 09:03	10/06/22 13:45	1
Metribuzin	ND		0.050	ug/L		10/05/22 09:03	10/06/22 13:45	1
Molinate	ND		0.10	ug/L		10/05/22 09:03	10/06/22 13:45	1
Naphthalene	ND		0.30	ug/L		10/05/22 09:03	10/06/22 13:45	1
Parathion	ND		0.10	ug/L		10/05/22 09:03	10/06/22 13:45	1
Pendimethalin (Penoxaline)	ND		0.10	ug/L		10/05/22 09:03	10/06/22 13:45	1
Phenanthrene	ND		0.040	ug/L		10/05/22 09:03	10/06/22 13:45	1
Propachlor	ND		0.050	ug/L		10/05/22 09:03	10/06/22 13:45	1
Pyrene	ND		0.050	ug/L		10/05/22 09:03	10/06/22 13:45	1
Simazine	ND		0.050	ug/L		10/05/22 09:03	10/06/22 13:45	1
Terbacil	ND		0.10	ug/L		10/05/22 09:03	10/06/22 13:45	1
Terbutylazine	ND		0.10	ug/L		10/05/22 09:03	10/06/22 13:45	1
Thiobencarb	ND		0.20	ug/L		10/05/22 09:03	10/06/22 13:45	1
Total Permethrin (mixed isomers)	ND		0.20	ug/L		10/05/22 09:03	10/06/22 13:45	1
trans-Nonachlor	ND		0.050	ug/L		10/05/22 09:03	10/06/22 13:45	1
Trifluralin	ND		0.10	ug/L		10/05/22 09:03	10/06/22 13:45	1
1-Methylnaphthalene	ND		0.10	ug/L		10/05/22 09:03	10/06/22 13:45	1
2-Methylnaphthalene	ND		0.10	ug/L		10/05/22 09:03	10/06/22 13:45	1

<i>Tentatively Identified Compound</i>	MB Est. Result	MB Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
<i>Cyclotetrasiloxane, octamethyl-</i>	0.917	T J N	ug/L		2.30	556-67-2	10/05/22 09:03	10/06/22 13:45	1
<i>Decane</i>	1.37	T J N	ug/L		2.45	124-18-5	10/05/22 09:03	10/06/22 13:45	1
<i>Cyclopentasiloxane, decamethyl-</i>	0.616	T J N	ug/L		2.75	541-02-6	10/05/22 09:03	10/06/22 13:45	1
<i>9-Octadecenamamide, (Z)-</i>	1.49	T J N	ug/L		7.63	301-02-0	10/05/22 09:03	10/06/22 13:45	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	92		70 - 130	10/05/22 09:03	10/06/22 13:45	1
Perylene-d12	90		70 - 130	10/05/22 09:03	10/06/22 13:45	1
Triphenylphosphate	106		70 - 130	10/05/22 09:03	10/06/22 13:45	1

QC Sample Results

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

Job ID: 380-22874-1

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

Lab Sample ID: LCS 380-19592/3-A
Matrix: Water
Analysis Batch: 19817

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 19592

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4'-DDD	1.99	2.05		ug/L		103	70 - 130
2,4'-DDE	1.99	2.13		ug/L		107	70 - 130
2,4'-DDT	1.99	2.08		ug/L		105	70 - 130
2,4-Dinitrotoluene	1.99	1.69		ug/L		85	70 - 130
2,6-Dinitrotoluene	1.99	1.99		ug/L		100	70 - 130
4,4'-DDD	1.99	2.18		ug/L		110	70 - 130
4,4'-DDE	1.99	2.23		ug/L		112	70 - 130
4,4'-DDT	1.99	2.04		ug/L		103	70 - 130
Acenaphthene	1.99	1.99		ug/L		100	70 - 130
Acenaphthylene	1.99	2.03		ug/L		102	70 - 130
Acetochlor	1.99	2.23		ug/L		112	70 - 130
Alachlor	1.99	2.14		ug/L		108	70 - 130
alpha-BHC	1.99	2.16		ug/L		108	70 - 130
alpha-Chlordane	1.99	2.02		ug/L		101	70 - 130
Anthracene	1.99	1.97		ug/L		99	70 - 130
Atrazine	1.99	2.31		ug/L		116	70 - 130
Benz(a)anthracene	1.99	2.18		ug/L		110	70 - 130
Benzo[a]pyrene	1.99	2.26		ug/L		114	70 - 130
Benzo[b]fluoranthene	1.99	2.28		ug/L		114	70 - 130
Benzo[g,h,i]perylene	1.99	2.28		ug/L		114	70 - 130
Benzo[k]fluoranthene	1.99	2.34		ug/L		118	70 - 130
beta-BHC	1.99	2.17		ug/L		109	70 - 130
Bis(2-ethylhexyl) phthalate	1.99	2.21		ug/L		111	70 - 130
Bromacil	1.99	2.14		ug/L		108	70 - 130
Butachlor	1.99	2.17		ug/L		109	70 - 130
Butylbenzylphthalate	1.99	2.08		ug/L		104	70 - 130
Caffeine	1.99	1.82		ug/L		92	45 - 137
Chlorobenzilate	1.99	1.75		ug/L		88	70 - 130
Chloroneb	1.99	2.14		ug/L		107	70 - 130
Chlorothalonil (Draconil, Bravo)	1.99	2.21		ug/L		111	70 - 130
Chlorpyrifos	1.99	2.13		ug/L		107	70 - 130
Chrysene	1.99	2.07		ug/L		104	70 - 130
delta-BHC	1.99	2.09		ug/L		105	70 - 130
Di(2-ethylhexyl)adipate	1.99	2.42		ug/L		122	70 - 130
Diazinon (Qualitative)	1.99	2.14		ug/L		108	15 - 132
Dibenz(a,h)anthracene	1.99	1.98		ug/L		100	70 - 130
Diclorvos (DDVP)	1.99	2.25		ug/L		113	70 - 130
Dieldrin	1.99	2.14		ug/L		108	70 - 130
Diethylphthalate	1.99	2.25		ug/L		113	70 - 130
Dimethoate	1.99	1.15		ug/L		58	35 - 100
Dimethylphthalate	1.99	2.25		ug/L		113	70 - 130
Di-n-butyl phthalate	3.98	4.56		ug/L		115	70 - 130
Di-n-octyl phthalate	1.99	1.86		ug/L		93	70 - 130
Endosulfan I (Alpha)	1.99	1.96		ug/L		98	70 - 130
Endosulfan II (Beta)	1.99	2.19		ug/L		110	70 - 130
Endosulfan sulfate	1.99	2.36		ug/L		119	70 - 130
Endrin	1.99	2.17		ug/L		109	70 - 130
Endrin aldehyde	1.99	1.99		ug/L		100	70 - 130

Eurofins Eaton Monrovia

QC Sample Results

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

Job ID: 380-22874-1

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

Lab Sample ID: LCS 380-19592/3-A
Matrix: Water
Analysis Batch: 19817

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 19592

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
EPTC	1.99	2.10		ug/L		105	70 - 130
Fluoranthene	1.99	2.10		ug/L		106	70 - 130
Fluorene	1.99	2.09		ug/L		105	70 - 130
gamma-BHC (Lindane)	1.99	2.11		ug/L		106	70 - 130
gamma-Chlordane	1.99	2.18		ug/L		110	70 - 130
Heptachlor	1.99	2.09		ug/L		105	70 - 130
Heptachlor epoxide (isomer B)	1.99	2.28		ug/L		115	70 - 130
Hexachlorobenzene	1.99	2.01		ug/L		101	70 - 130
Hexachlorocyclopentadiene	1.99	2.11		ug/L		106	70 - 130
Indeno[1,2,3-cd]pyrene	1.99	2.21		ug/L		111	70 - 130
Isophorone	1.99	2.19		ug/L		110	70 - 130
Malathion	1.99	2.07		ug/L		104	70 - 130
Methoxychlor	1.99	2.26		ug/L		114	70 - 130
Metolachlor	1.99	2.20		ug/L		111	70 - 130
Metribuzin	1.99	1.94		ug/L		98	70 - 130
Molinate	1.99	2.21		ug/L		111	70 - 130
Naphthalene	1.99	1.86		ug/L		93	70 - 130
Parathion	1.99	2.08		ug/L		105	70 - 130
Pendimethalin (Penoxaline)	1.99	2.08		ug/L		105	70 - 130
Phenanthrene	1.99	1.95		ug/L		98	70 - 130
Propachlor	1.99	2.24		ug/L		112	70 - 130
Pyrene	1.99	2.12		ug/L		107	70 - 130
Simazine	1.99	2.33		ug/L		117	70 - 130
Terbacil	1.99	2.06		ug/L		103	70 - 130
Terbutylazine	1.99	2.28		ug/L		115	70 - 130
Thiobencarb	1.99	2.13		ug/L		107	70 - 130
trans-Nonachlor	1.99	2.09		ug/L		105	70 - 130
Trifluralin	1.99	2.03		ug/L		102	70 - 130
1-Methylnaphthalene	1.99	1.99		ug/L		100	70 - 130
2-Methylnaphthalene	1.99	2.14		ug/L		107	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Nitro-m-xylene	98		70 - 130
Perylene-d12	98		70 - 130
Triphenylphosphate	105		70 - 130

Lab Sample ID: LCSD 380-19592/4-A
Matrix: Water
Analysis Batch: 19817

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 19592

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2,4'-DDD	1.99	2.08		ug/L		104	70 - 130	1	20
2,4'-DDE	1.99	2.16		ug/L		108	70 - 130	2	20
2,4'-DDT	1.99	2.13		ug/L		107	70 - 130	2	20
2,4-Dinitrotoluene	1.99	1.76		ug/L		88	70 - 130	4	20
2,6-Dinitrotoluene	1.99	2.05		ug/L		103	70 - 130	3	20
4,4'-DDD	1.99	2.28		ug/L		115	70 - 130	5	20
4,4'-DDE	1.99	2.29		ug/L		115	70 - 130	3	20

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QC Sample Results

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

Job ID: 380-22874-1

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

Lab Sample ID: LCSD 380-19592/4-A
Matrix: Water
Analysis Batch: 19817

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 19592

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	RPD Limit
							Limits	RPD		
4,4'-DDT	1.99	2.13		ug/L		107	70 - 130	4	20	
Acenaphthene	1.99	2.03		ug/L		102	70 - 130	2	20	
Acenaphthylene	1.99	2.04		ug/L		102	70 - 130	0	20	
Acetochlor	1.99	2.21		ug/L		111	70 - 130	1	20	
Alachlor	1.99	2.14		ug/L		107	70 - 130	0	20	
alpha-BHC	1.99	2.20		ug/L		110	70 - 130	2	20	
alpha-Chlordane	1.99	2.02		ug/L		102	70 - 130	0	20	
Anthracene	1.99	1.99		ug/L		100	70 - 130	1	20	
Atrazine	1.99	2.40		ug/L		121	70 - 130	4	20	
Benz(a)anthracene	1.99	2.30		ug/L		115	70 - 130	5	20	
Benzo[a]pyrene	1.99	2.37		ug/L		119	70 - 130	5	20	
Benzo[b]fluoranthene	1.99	2.37		ug/L		119	70 - 130	4	20	
Benzo[g,h,i]perylene	1.99	2.30		ug/L		116	70 - 130	1	20	
Benzo[k]fluoranthene	1.99	2.36		ug/L		118	70 - 130	1	20	
beta-BHC	1.99	2.19		ug/L		110	70 - 130	1	20	
Bis(2-ethylhexyl) phthalate	1.99	2.26		ug/L		114	70 - 130	2	20	
Bromacil	1.99	2.19		ug/L		110	70 - 130	2	20	
Butachlor	1.99	2.20		ug/L		111	70 - 130	2	20	
Butylbenzylphthalate	1.99	2.16		ug/L		109	70 - 130	4	20	
Caffeine	1.99	1.87		ug/L		94	45 - 137	3	20	
Chlorobenzilate	1.99	1.71		ug/L		86	70 - 130	3	20	
Chloroneb	1.99	2.18		ug/L		109	70 - 130	2	20	
Chlorothalonil (Draconil, Bravo)	1.99	2.22		ug/L		112	70 - 130	1	20	
Chlorpyrifos	1.99	2.19		ug/L		110	70 - 130	3	20	
Chrysene	1.99	2.09		ug/L		105	70 - 130	1	20	
delta-BHC	1.99	2.10		ug/L		105	70 - 130	1	20	
Di(2-ethylhexyl)adipate	1.99	2.54		ug/L		127	70 - 130	5	20	
Diazinon (Qualitative)	1.99	2.18		ug/L		110	15 - 132	2	20	
Dibenz(a,h)anthracene	1.99	2.03		ug/L		102	70 - 130	2	20	
Diclorvos (DDVP)	1.99	2.28		ug/L		115	70 - 130	1	20	
Dieldrin	1.99	2.20		ug/L		110	70 - 130	3	20	
Diethylphthalate	1.99	2.25		ug/L		113	70 - 130	0	20	
Dimethoate	1.99	1.20		ug/L		60	35 - 100	4	20	
Dimethylphthalate	1.99	2.23		ug/L		112	70 - 130	1	20	
Di-n-butyl phthalate	3.98	4.52		ug/L		113	70 - 130	1	20	
Di-n-octyl phthalate	1.99	2.09		ug/L		105	70 - 130	11	20	
Endosulfan I (Alpha)	1.99	1.97		ug/L		99	70 - 130	1	20	
Endosulfan II (Beta)	1.99	2.18		ug/L		109	70 - 130	1	20	
Endosulfan sulfate	1.99	2.43		ug/L		122	70 - 130	3	20	
Endrin	1.99	2.20		ug/L		110	70 - 130	1	20	
Endrin aldehyde	1.99	1.98		ug/L		100	70 - 130	0	20	
EPTC	1.99	2.15		ug/L		108	70 - 130	3	20	
Fluoranthene	1.99	2.13		ug/L		107	70 - 130	1	20	
Fluorene	1.99	2.13		ug/L		107	70 - 130	2	20	
gamma-BHC (Lindane)	1.99	2.18		ug/L		110	70 - 130	3	20	
gamma-Chlordane	1.99	2.19		ug/L		110	70 - 130	0	20	
Heptachlor	1.99	2.11		ug/L		106	70 - 130	1	20	
Heptachlor epoxide (isomer B)	1.99	2.28		ug/L		114	70 - 130	0	20	
Hexachlorobenzene	1.99	2.04		ug/L		102	70 - 130	1	20	

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QC Sample Results

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

Job ID: 380-22874-1

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

Lab Sample ID: LCSD 380-19592/4-A
Matrix: Water
Analysis Batch: 19817

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 19592

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Hexachlorocyclopentadiene	1.99	2.20		ug/L		111	70 - 130	4	20
Indeno[1,2,3-cd]pyrene	1.99	2.25		ug/L		113	70 - 130	2	20
Isophorone	1.99	2.22		ug/L		112	70 - 130	2	20
Malathion	1.99	2.13		ug/L		107	70 - 130	3	20
Methoxychlor	1.99	2.30		ug/L		116	70 - 130	2	20
Metolachlor	1.99	2.22		ug/L		112	70 - 130	1	20
Metribuzin	1.99	1.86		ug/L		94	70 - 130	4	20
Molinate	1.99	2.25		ug/L		113	70 - 130	2	20
Naphthalene	1.99	1.89		ug/L		95	70 - 130	2	20
Parathion	1.99	2.17		ug/L		109	70 - 130	4	20
Pendimethalin (Penoxaline)	1.99	2.12		ug/L		107	70 - 130	2	20
Phenanthrene	1.99	1.95		ug/L		98	70 - 130	0	20
Propachlor	1.99	2.29		ug/L		115	70 - 130	2	20
Pyrene	1.99	2.17		ug/L		109	70 - 130	3	20
Simazine	1.99	2.39		ug/L		120	70 - 130	2	20
Terbacil	1.99	2.14		ug/L		108	70 - 130	4	20
Terbutylazine	1.99	2.32		ug/L		116	70 - 130	2	20
Thiobencarb	1.99	2.13		ug/L		107	70 - 130	0	20
trans-Nonachlor	1.99	2.11		ug/L		106	70 - 130	1	20
Trifluralin	1.99	2.11		ug/L		106	70 - 130	4	20
1-Methylnaphthalene	1.99	2.04		ug/L		103	70 - 130	3	20
2-Methylnaphthalene	1.99	2.18		ug/L		110	70 - 130	2	20

Surrogate	LCSD %Recovery	LCSD Qualifier	LCSD Limits
2-Nitro-m-xylene	98		70 - 130
Perylene-d12	98		70 - 130
Triphenylphosphate	109		70 - 130

Lab Sample ID: MRL 380-19592/2-A
Matrix: Water
Analysis Batch: 19817

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 19592

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
2,4'-DDD	0.0992	0.131		ug/L		132	50 - 150
2,4'-DDE	0.0992	0.107		ug/L		108	50 - 150
2,4'-DDT	0.0992	0.118		ug/L		119	50 - 150
2,4-Dinitrotoluene	0.0992	0.133		ug/L		134	50 - 150
2,6-Dinitrotoluene	0.0992	0.0817	J	ug/L		82	50 - 150
4,4'-DDD	0.0992	0.0998		ug/L		101	50 - 150
4,4'-DDE	0.0992	0.107		ug/L		108	50 - 150
4,4'-DDT	0.0992	0.117		ug/L		118	50 - 150
Acenaphthene	0.0992	0.0963	J	ug/L		97	50 - 150
Acenaphthylene	0.0992	0.0846	J	ug/L		85	50 - 150
Acetochlor	0.0496	0.0459	J	ug/L		93	50 - 150
Alachlor	0.0496	0.0495	J	ug/L		100	50 - 150
alpha-BHC	0.0992	0.111		ug/L		112	50 - 150
alpha-Chlordane	0.0496	0.0520		ug/L		105	50 - 150
Anthracene	0.0198	ND		ug/L		95	50 - 150

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QC Sample Results

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

Job ID: 380-22874-1

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

Lab Sample ID: MRL 380-19592/2-A
Matrix: Water
Analysis Batch: 19817

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 19592

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Atrazine	0.0496	0.0498	J	ug/L		101	50 - 150
Benz(a)anthracene	0.0496	0.0497	J	ug/L		100	50 - 150
Benzo[a]pyrene	0.0198	0.0180	J	ug/L		91	50 - 150
Benzo[b]fluoranthene	0.0198	0.0198	J	ug/L		100	50 - 150
Benzo[g,h,i]perylene	0.0496	0.0418	J	ug/L		84	50 - 150
Benzo[k]fluoranthene	0.0198	0.0191	J	ug/L		97	50 - 150
beta-BHC	0.0992	0.0989	J	ug/L		100	50 - 150
Bis(2-ethylhexyl) phthalate	0.595	0.634		ug/L		107	50 - 150
Bromacil	0.0992	0.135		ug/L		136	50 - 150
Butachlor	0.0496	0.0707		ug/L		143	50 - 150
Butylbenzylphthalate	0.149	0.177	J	ug/L		119	50 - 150
Caffeine	0.0496	0.0467	J	ug/L		94	50 - 150
Chlorobenzilate	0.0992	0.148		ug/L		149	50 - 150
Chloroneb	0.0992	0.112		ug/L		113	50 - 150
Chlorothalonil (Draconil, Bravo)	0.0992	0.126		ug/L		127	50 - 150
Chlorpyrifos	0.0496	0.0529		ug/L		107	50 - 150
Chrysene	0.0198	0.0209		ug/L		106	50 - 150
delta-BHC	0.0992	0.120		ug/L		121	50 - 150
Di(2-ethylhexyl)adipate	0.297	0.333	J	ug/L		112	50 - 150
Diazinon (Qualitative)	0.0992	0.0969	J	ug/L		98	15 - 132
Dibenz(a,h)anthracene	0.0496	0.0518		ug/L		104	50 - 150
Diclorvos (DDVP)	0.0496	0.0544		ug/L		110	50 - 150
Dieldrin	0.0992	0.117	J	ug/L		118	50 - 150
Diethylphthalate	0.149	0.164	J	ug/L		110	50 - 150
Dimethoate	0.0992	0.0510	J	ug/L		51	35 - 100
Dimethylphthalate	0.297	0.294	J	ug/L		99	50 - 150
Di-n-butyl phthalate	0.297	0.388	J	ug/L		130	49 - 243
Di-n-octyl phthalate	0.0992	0.117		ug/L		118	50 - 150
Endosulfan I (Alpha)	0.0992	0.0827	J	ug/L		83	50 - 150
Endosulfan II (Beta)	0.0992	0.111		ug/L		112	50 - 150
Endosulfan sulfate	0.0992	0.0958	J	ug/L		97	50 - 150
Endrin	0.0992	0.134		ug/L		135	50 - 150
Endrin aldehyde	0.0992	0.124		ug/L		125	50 - 150
EPTC	0.0992	0.0953	J	ug/L		96	50 - 150
Fluoranthene	0.0496	0.0495	J	ug/L		100	50 - 150
Fluorene	0.0496	ND		ug/L		100	50 - 150
gamma-BHC (Lindane)	0.0496	0.0406		ug/L		82	50 - 150
gamma-Chlordane	0.0496	0.0500		ug/L		101	50 - 150
Heptachlor	0.0397	0.0488		ug/L		123	50 - 150
Heptachlor epoxide (isomer B)	0.0496	0.0528		ug/L		107	50 - 150
Hexachlorobenzene	0.0496	0.0653		ug/L		132	50 - 150
Hexachlorocyclopentadiene	0.0496	0.0470	J	ug/L		95	50 - 150
Indeno[1,2,3-cd]pyrene	0.0496	0.0358	J	ug/L		72	50 - 150
Isophorone	0.0992	0.0997	J	ug/L		101	50 - 150
Malathion	0.0992	0.105		ug/L		106	50 - 150
Methoxychlor	0.0992	0.0894	J	ug/L		90	50 - 150
Metolachlor	0.0496	0.0517		ug/L		104	50 - 150
Metribuzin	0.0496	0.0540		ug/L		109	50 - 150
Molinate	0.0992	0.101		ug/L		102	50 - 150

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QC Sample Results

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

Job ID: 380-22874-1

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

Lab Sample ID: MRL 380-19592/2-A
Matrix: Water
Analysis Batch: 19817

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 19592

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Naphthalene	0.0992	0.0926	J	ug/L		93	50 - 150
Parathion	0.0992	0.0961	J	ug/L		97	50 - 150
Pendimethalin (Penoxaline)	0.0992	0.109		ug/L		110	50 - 150
Phenanthrene	0.0198	0.0211	J	ug/L		106	50 - 150
Propachlor	0.0496	0.0462	J	ug/L		93	50 - 150
Pyrene	0.0496	0.0522		ug/L		105	50 - 150
Simazine	0.0496	0.0545		ug/L		110	50 - 150
Terbacil	0.0992	0.108		ug/L		108	50 - 150
Terbutylazine	0.0992	0.0946	J	ug/L		95	50 - 150
Thiobencarb	0.0992	0.114	J	ug/L		115	50 - 150
trans-Nonachlor	0.0496	0.0515		ug/L		104	50 - 150
Trifluralin	0.0992	0.112		ug/L		113	50 - 150
1-Methylnaphthalene	0.0992	0.109		ug/L		110	50 - 150
2-Methylnaphthalene	0.0992	0.104		ug/L		105	50 - 150

Surrogate	MRL %Recovery	MRL Qualifier	Limits
2-Nitro-m-xylene	94		70 - 130
Perylene-d12	84		70 - 130
Triphenylphosphate	106		70 - 130

Lab Sample ID: 380-22081-B-2-B MS
Matrix: Water
Analysis Batch: 19817

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 19592

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
2,4'-DDD	ND		1.97	2.07		ug/L		105	70 - 130
2,4'-DDE	ND		1.97	2.14		ug/L		109	70 - 130
2,4'-DDT	ND		1.97	2.08		ug/L		106	70 - 130
2,4-Dinitrotoluene	ND		1.97	1.84		ug/L		94	70 - 130
2,6-Dinitrotoluene	ND		1.97	2.15		ug/L		110	70 - 130
4,4'-DDD	ND		1.97	2.23		ug/L		113	70 - 130
4,4'-DDE	ND		1.97	2.24		ug/L		114	70 - 130
4,4'-DDT	ND		1.97	2.04		ug/L		104	70 - 130
Acenaphthene	ND		1.97	1.97		ug/L		100	70 - 130
Acenaphthylene	ND		1.97	2.08		ug/L		106	70 - 130
Acetochlor	ND		1.97	2.20		ug/L		112	70 - 130
Alachlor	ND		1.97	2.13		ug/L		109	70 - 130
alpha-BHC	ND		1.97	2.18		ug/L		111	70 - 130
alpha-Chlordane	ND		1.97	2.03		ug/L		103	70 - 130
Anthracene	ND		1.97	1.60		ug/L		81	70 - 130
Atrazine	ND		1.97	2.39		ug/L		121	70 - 130
Benz(a)anthracene	ND		1.97	2.18		ug/L		111	70 - 130
Benzo[a]pyrene	ND		1.97	2.13		ug/L		108	70 - 130
Benzo[b]fluoranthene	ND		1.97	2.40		ug/L		122	70 - 130
Benzo[g,h,i]perylene	ND		1.97	2.36		ug/L		120	70 - 130
Benzo[k]fluoranthene	ND		1.97	2.39		ug/L		122	70 - 130
beta-BHC	ND		1.97	2.15		ug/L		109	70 - 130
Bis(2-ethylhexyl) phthalate	ND		1.97	2.25		ug/L		115	70 - 130

QC Sample Results

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

Job ID: 380-22874-1

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

Lab Sample ID: 380-22081-B-2-B MS
Matrix: Water
Analysis Batch: 19817

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 19592

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec
	Result	Qualifier	Added	Result	Qualifier				Limits
Bromacil	ND		1.97	2.19		ug/L		112	70 - 130
Butachlor	ND		1.97	2.19		ug/L		112	70 - 130
Butylbenzylphthalate	ND		1.97	2.11		ug/L		107	70 - 130
Caffeine	ND		1.97	2.13		ug/L		108	46 - 144
Chlorobenzilate	ND		1.97	1.80		ug/L		91	70 - 130
Chloroneb	ND		1.97	2.11		ug/L		107	70 - 130
Chlorothalonil (Draconil, Bravo)	ND		1.97	2.23		ug/L		113	70 - 130
Chlorpyrifos	ND		1.97	2.15		ug/L		109	70 - 130
Chrysene	ND		1.97	2.09		ug/L		106	70 - 130
delta-BHC	ND		1.97	2.05		ug/L		104	70 - 130
Di(2-ethylhexyl)adipate	ND		1.97	2.49		ug/L		126	70 - 130
Diazinon (Qualitative)	ND		1.97	2.20		ug/L		112	15 - 132
Dibenz(a,h)anthracene	ND		1.97	2.10		ug/L		107	70 - 130
Diclorvos (DDVP)	ND		1.97	2.29		ug/L		116	70 - 130
Dieldrin	ND		1.97	2.24		ug/L		114	70 - 130
Diethylphthalate	ND		1.97	2.24		ug/L		114	70 - 130
Dimethoate	ND		1.97	1.42		ug/L		72	34 - 111
Dimethylphthalate	ND		1.97	2.25		ug/L		114	70 - 130
Di-n-butyl phthalate	ND		3.93	4.51		ug/L		115	70 - 130
Di-n-octyl phthalate	ND		1.97	2.06		ug/L		105	70 - 130
Endosulfan I (Alpha)	ND		1.97	1.93		ug/L		98	70 - 130
Endosulfan II (Beta)	ND		1.97	2.22		ug/L		113	70 - 130
Endosulfan sulfate	ND		1.97	2.44		ug/L		124	70 - 130
Endrin	ND		1.97	2.19		ug/L		111	70 - 130
Endrin aldehyde	ND		1.97	2.09		ug/L		106	70 - 130
EPTC	ND		1.97	2.17		ug/L		110	70 - 130
Fluoranthene	ND		1.97	2.12		ug/L		108	70 - 130
Fluorene	ND		1.97	2.13		ug/L		108	70 - 130
gamma-BHC (Lindane)	ND		1.97	2.13		ug/L		108	70 - 130
gamma-Chlordane	ND		1.97	2.15		ug/L		109	70 - 130
Heptachlor	ND		1.97	2.09		ug/L		106	70 - 130
Heptachlor epoxide (isomer B)	ND		1.97	2.31		ug/L		117	70 - 130
Hexachlorobenzene	ND		1.97	2.02		ug/L		103	70 - 130
Hexachlorocyclopentadiene	ND		1.97	2.22		ug/L		113	70 - 130
Indeno[1,2,3-cd]pyrene	ND		1.97	2.30		ug/L		117	70 - 130
Isophorone	ND		1.97	2.21		ug/L		112	70 - 130
Malathion	ND		1.97	2.13		ug/L		108	70 - 130
Methoxychlor	ND		1.97	2.32		ug/L		118	70 - 130
Metolachlor	ND		1.97	2.22		ug/L		113	70 - 130
Metribuzin	ND		1.97	1.99		ug/L		101	70 - 130
Molinate	ND		1.97	2.22		ug/L		113	70 - 130
Naphthalene	ND		1.97	1.86		ug/L		95	70 - 130
Parathion	ND		1.97	2.12		ug/L		108	70 - 130
Pendimethalin (Penoxaline)	ND		1.97	2.08		ug/L		106	70 - 130
Phenanthrene	ND		1.97	1.94		ug/L		99	70 - 130
Propachlor	ND		1.97	2.28		ug/L		116	70 - 130
Pyrene	ND		1.97	2.14		ug/L		109	70 - 130
Simazine	ND		1.97	2.35		ug/L		120	70 - 130
Terbacil	ND		1.97	2.20		ug/L		112	70 - 130

Eurofins Eaton Monrovia

QC Sample Results

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

Job ID: 380-22874-1

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

Lab Sample ID: 380-22081-B-2-B MS
Matrix: Water
Analysis Batch: 19817

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 19592

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Terbutylazine	ND		1.97	2.31		ug/L		117	70 - 130
Thiobencarb	ND		1.97	2.13		ug/L		109	70 - 130
trans-Nonachlor	ND		1.97	2.11		ug/L		107	70 - 130
Trifluralin	ND		1.97	2.10		ug/L		107	70 - 130
1-Methylnaphthalene	ND		1.97	2.00		ug/L		102	70 - 130
2-Methylnaphthalene	ND		1.97	2.14		ug/L		109	70 - 130

Surrogate	MS %Recovery	MS Qualifier	MS Limits
2-Nitro-m-xylene	99		70 - 130
Perylene-d12	98		70 - 130
Triphenylphosphate	108		70 - 130

Lab Sample ID: 380-22076-D-1-B DU
Matrix: Water
Analysis Batch: 19817

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 19592

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
Bis(2-ethylhexyl) phthalate	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

QC Sample Results

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

Job ID: 380-22874-1

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

Lab Sample ID: 380-22076-D-1-B DU
Matrix: Water
Analysis Batch: 19817

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 19592

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
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
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
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-BHC (Lindane)	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
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
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
Total Permethrin (mixed isomers)	ND		ND		ug/L		NC	20
trans-Nonachlor	ND		ND		ug/L		NC	20
Trifluralin	ND		ND		ug/L		NC	20
1-Methylnaphthalene	ND		ND		ug/L		NC	20
2-Methylnaphthalene	ND		ND		ug/L		NC	20

QC Sample Results

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

Job ID: 380-22874-1

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

Lab Sample ID: 380-22076-D-1-B DU
Matrix: Water
Analysis Batch: 19817

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 19592

Surrogate	DU DU		Limits
	%Recovery	Qualifier	
2-Nitro-m-xylene	96		70 - 130
Perylene-d12	93		70 - 130
Triphenylphosphate	103		70 - 130

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

Lab Sample ID: 100571-B1
Matrix: BlankMatrix
Analysis Batch: O-38146

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: O-38146_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		0.005	0.001	µg/L		10/03/22 00:00	10/09/22 02:35	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		10/03/22 00:00	10/09/22 02:35	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		10/03/22 00:00	10/09/22 02:35	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		10/03/22 00:00	10/09/22 02:35	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		10/03/22 00:00	10/09/22 02:35	1
Acenaphthene	ND		0.005	0.001	µg/L		10/03/22 00:00	10/09/22 02:35	1
Acenaphthylene	ND		0.005	0.001	µg/L		10/03/22 00:00	10/09/22 02:35	1
Anthracene	ND		0.005	0.001	µg/L		10/03/22 00:00	10/09/22 02:35	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		10/03/22 00:00	10/09/22 02:35	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		10/03/22 00:00	10/09/22 02:35	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		10/03/22 00:00	10/09/22 02:35	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		10/03/22 00:00	10/09/22 02:35	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		10/03/22 00:00	10/09/22 02:35	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		10/03/22 00:00	10/09/22 02:35	1
Biphenyl	ND		0.005	0.001	µg/L		10/03/22 00:00	10/09/22 02:35	1
Chrysene	ND		0.005	0.001	µg/L		10/03/22 00:00	10/09/22 02:35	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		10/03/22 00:00	10/09/22 02:35	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		10/03/22 00:00	10/09/22 02:35	1
Dibenzothiophene	ND		0.005	0.001	µg/L		10/03/22 00:00	10/09/22 02:35	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		10/03/22 00:00	10/09/22 02:35	1
Fluoranthene	ND		0.005	0.001	µg/L		10/03/22 00:00	10/09/22 02:35	1
Fluorene	ND		0.005	0.001	µg/L		10/03/22 00:00	10/09/22 02:35	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		10/03/22 00:00	10/09/22 02:35	1
Naphthalene	ND		0.005	0.001	µg/L		10/03/22 00:00	10/09/22 02:35	1
Perylene	ND		0.005	0.001	µg/L		10/03/22 00:00	10/09/22 02:35	1
Phenanthrene	ND		0.005	0.001	µg/L		10/03/22 00:00	10/09/22 02:35	1
Pyrene	ND		0.005	0.001	µg/L		10/03/22 00:00	10/09/22 02:35	1

Surrogate	Blank %Recovery	Blank Qualifier	Limits	Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	88		65 - 113	10/03/22 00:00	10/09/22 02:35	1
(d10-Phenanthrene)	92		80 - 111	10/03/22 00:00	10/09/22 02:35	1
(d12-Chrysene)	88		60 - 139	10/03/22 00:00	10/09/22 02:35	1
(d12-Perylene)	83		36 - 161	10/03/22 00:00	10/09/22 02:35	1
(d8-Naphthalene)	105		44 - 119	10/03/22 00:00	10/09/22 02:35	1

Eurofins Eaton Monrovia

QC Sample Results

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

Job ID: 380-22874-1

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

Lab Sample ID: 100571-BS1
Matrix: BlankMatrix
Analysis Batch: O-38146

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: O-38146_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1-Methylnaphthalene	0.5	0.45		µg/L		90	49 - 117
1-Methylphenanthrene	0.5	0.402		µg/L		80	66 - 127
2,3,5-Trimethylnaphthalene	0.5	0.423		µg/L		85	57 - 120
2,6-Dimethylnaphthalene	0.5	0.417		µg/L		83	54 - 117
2-Methylnaphthalene	0.5	0.48		µg/L		96	47 - 130
Acenaphthene	0.5	0.421		µg/L		84	53 - 131
Acenaphthylene	0.5	0.393		µg/L		79	43 - 140
Anthracene	0.5	0.432		µg/L		86	58 - 135
Benz[a]anthracene	0.5	0.464		µg/L		93	55 - 145
Benzo[a]pyrene	0.5	0.398		µg/L		80	51 - 143
Benzo[b]fluoranthene	0.5	0.54		µg/L		108	46 - 165
Benzo[e]pyrene	0.5	0.5		µg/L		100	42 - 152
Benzo[g,h,i]perylene	0.5	0.425		µg/L		85	63 - 133
Benzo[k]fluoranthene	0.5	0.486		µg/L		97	56 - 145
Biphenyl	0.5	0.519		µg/L		104	56 - 119
Chrysene	0.5	0.389		µg/L		78	56 - 141
Dibenz[a,h]anthracene	0.5	0.549		µg/L		110	55 - 150
Dibenzo[a,l]pyrene	0.5	0.404		µg/L		81	50 - 150
Dibenzothiophene	0.5	0.425		µg/L		85	75 - 113
Disalicylidenepropanediamine	50	38.7		µg/L		77	50 - 150
Fluoranthene	0.5	0.402		µg/L		80	60 - 146
Fluorene	0.5	0.432		µg/L		86	58 - 131
Indeno[1,2,3-cd]pyrene	0.5	0.578		µg/L		116	50 - 151
Naphthalene	0.5	0.447		µg/L		89	41 - 126
Perylene	0.5	0.416		µg/L		83	48 - 141
Phenanthrene	0.5	0.436		µg/L		87	67 - 127
Pyrene	0.5	0.404		µg/L		81	54 - 156

Surrogate	LCS %Recovery	LCS Qualifier	LCS Limits
(d10-Acenaphthene)	90		65 - 113
(d10-Phenanthrene)	94		80 - 111
(d12-Chrysene)	92		60 - 139
(d12-Perylene)	96		36 - 161
(d8-Naphthalene)	106		44 - 119

Lab Sample ID: 100571-BS2
Matrix: BlankMatrix
Analysis Batch: O-38146

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: O-38146_P

Analyte	Spike Added	LCS DUP Result	LCS DUP Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1-Methylnaphthalene	0.5	0.44		µg/L		88	49 - 117	2	30
1-Methylphenanthrene	0.5	0.401		µg/L		80	66 - 127	0	30
2,3,5-Trimethylnaphthalene	0.5	0.418		µg/L		84	57 - 120	1	30
2,6-Dimethylnaphthalene	0.5	0.409		µg/L		82	54 - 117	1	30
2-Methylnaphthalene	0.5	0.476		µg/L		95	47 - 130	1	30
Acenaphthene	0.5	0.41		µg/L		82	53 - 131	2	30
Acenaphthylene	0.5	0.384		µg/L		77	43 - 140	3	30
Anthracene	0.5	0.416		µg/L		83	58 - 135	4	30

Eurofins Eaton Monrovia

QC Sample Results

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

Job ID: 380-22874-1

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

Lab Sample ID: 100571-BS2
Matrix: BlankMatrix
Analysis Batch: O-38146

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: O-38146_P

Analyte	Spike Added	LCS DUP Result	LCS DUP Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
Benz[a]anthracene	0.5	0.461		µg/L		92	55 - 145	1	30	
Benzo[a]pyrene	0.5	0.42		µg/L		84	51 - 143	5	30	
Benzo[b]fluoranthene	0.5	0.547		µg/L		109	46 - 165	1	30	
Benzo[e]pyrene	0.5	0.488		µg/L		98	42 - 152	2	30	
Benzo[g,h,i]perylene	0.5	0.415		µg/L		83	63 - 133	2	30	
Benzo[k]fluoranthene	0.5	0.478		µg/L		96	56 - 145	1	30	
Biphenyl	0.5	0.503		µg/L		101	56 - 119	3	30	
Chrysene	0.5	0.374		µg/L		75	56 - 141	4	30	
Dibenz[a,h]anthracene	0.5	0.554		µg/L		111	55 - 150	1	30	
Dibenzo[a,l]pyrene	0.5	0.427		µg/L		85	50 - 150	5	30	
Dibenzothiophene	0.5	0.418		µg/L		84	75 - 113	1	30	
Disalicylidenepropanediamine	50	46.1		µg/L		92	50 - 150	18	30	
Fluoranthene	0.5	0.394		µg/L		79	60 - 146	1	30	
Fluorene	0.5	0.421		µg/L		84	58 - 131	2	30	
Indeno[1,2,3-cd]pyrene	0.5	0.598		µg/L		120	50 - 151	3	30	
Naphthalene	0.5	0.432		µg/L		86	41 - 126	3	30	
Perylene	0.5	0.403		µg/L		81	48 - 141	2	30	
Phenanthrene	0.5	0.421		µg/L		84	67 - 127	4	30	
Pyrene	0.5	0.4		µg/L		80	54 - 156	1	30	

Surrogate	LCS DUP		Limits
	%Recovery	Qualifier	
(d10-Acenaphthene)	89		65 - 113
(d10-Phenanthrene)	93		80 - 111
(d12-Chrysene)	87		60 - 139
(d12-Perylene)	94		36 - 161
(d8-Naphthalene)	104		44 - 119

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

Lab Sample ID: 22DSJ032WB
Matrix: WATER
Analysis Batch: 22DSJ032W

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

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
DIESEL	ND	U	0.025		mg/L			10/17/22 12:50	1
MOTOR OIL	ND	U	0.05		mg/L			10/17/22 12:50	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
BROMOBENZENE					10/17/22 12:50	1
HEXACOSANE					10/17/22 12:50	1

Lab Sample ID: 22DSJ032WL
Matrix: WATER
Analysis Batch: 22DSJ032W

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec	
							Limits	RPD
DIESEL	2.5	2.38		mg/L		95	50 - 130	

Eurofins Eaton Monrovia

QC Sample Results

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

Job ID: 380-22874-1

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

Lab Sample ID: 22DSJ032WL
Matrix: WATER
Analysis Batch: 22DSJ032W

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

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
BROMOBENZENE	100		60 - 130
HEXACOSANE	94		60 - 130

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

Lab Sample ID: 22VGH7J02B
Matrix: WATER
Analysis Batch: 22VGH7J02

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GASOLINE	ND	U	0.02		mg/L			10/08/22 10:48	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
BROMOFLUOROBENZENE					10/08/22 10:48	1

Lab Sample ID: 22VGH7J02L
Matrix: WATER
Analysis Batch: 22VGH7J02

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
GASOLINE	0.5	0.536		mg/L		107	60 - 130

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
BROMOFLUOROBENZENE	108		70 - 130

QC Association Summary

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

Job ID: 380-22874-1

GC/MS Semi VOA

Prep Batch: 19592

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-22874-1	HALAWA WELLS UNIT 1 331-023	Total/NA	Water	525.2	
MB 380-19592/1-A	Method Blank	Total/NA	Water	525.2	
LCS 380-19592/3-A	Lab Control Sample	Total/NA	Water	525.2	
LCSD 380-19592/4-A	Lab Control Sample Dup	Total/NA	Water	525.2	
MRL 380-19592/2-A	Lab Control Sample	Total/NA	Water	525.2	
380-22081-B-2-B MS	Matrix Spike	Total/NA	Water	525.2	
380-22076-D-1-B DU	Duplicate	Total/NA	Water	525.2	

Analysis Batch: 19817

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-22874-1	HALAWA WELLS UNIT 1 331-023	Total/NA	Water	525.2	19592
MB 380-19592/1-A	Method Blank	Total/NA	Water	525.2	19592
LCS 380-19592/3-A	Lab Control Sample	Total/NA	Water	525.2	19592
LCSD 380-19592/4-A	Lab Control Sample Dup	Total/NA	Water	525.2	19592
MRL 380-19592/2-A	Lab Control Sample	Total/NA	Water	525.2	19592
380-22081-B-2-B MS	Matrix Spike	Total/NA	Water	525.2	19592
380-22076-D-1-B DU	Duplicate	Total/NA	Water	525.2	19592

Subcontract

Analysis Batch: O-38146

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-22874-1	HALAWA WELLS UNIT 1 331-023	Total/NA	Water	625 PAH Physis LL (EAL) + TICs	O-38146_P
100571-B1	Method Blank	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-38146_P
100571-BS1	Lab Control Sample	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-38146_P
100571-BS2	Lab Control Sample Dup	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-38146_P

Analysis Batch: 22DSJ032W

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-22874-1	HALAWA WELLS UNIT 1 331-023	Total/NA	Water	8015 Diesel LL (EAL) and Motor Oil	
22DSJ032WB	Method Blank	Total/NA	WATER	8015 Diesel LL (EAL) and Motor Oil	
22DSJ032WL	Lab Control Sample	Total/NA	WATER	8015 Diesel LL (EAL) and Motor Oil	

Analysis Batch: 22VGH7J02

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-22874-1	HALAWA WELLS UNIT 1 331-023	Total/NA	Water	8015 Gas (Purgeable) LL (EAL)	
380-22874-2	TB HALAWA WELLS UNIT 1 331-023	Total/NA	Water	8015 Gas (Purgeable) LL (EAL)	
22VGH7J02B	Method Blank	Total/NA	WATER	8015 Gas (Purgeable) LL (EAL)	

Eurofins Eaton Monrovia

QC Association Summary

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

Job ID: 380-22874-1

Subcontract (Continued)

Analysis Batch: 22VGH7J02 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
22VGH7J02L	Lab Control Sample	Total/NA	WATER	8015 Gas (Purgeable) LL (EAL)	

Prep Batch: O-38146_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-22874-1	HALAWA WELLS UNIT 1 331-023	Total/NA	Water	EPA_625	
100571-B1	Method Blank	Total/NA	BlankMatrix	EPA_625	
100571-BS1	Lab Control Sample	Total/NA	BlankMatrix	EPA_625	
100571-BS2	Lab Control Sample Dup	Total/NA	BlankMatrix	EPA_625	

Lab Chronicle

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

Job ID: 380-22874-1

Client Sample ID: HALAWA WELLS UNIT 1 331-023

Lab Sample ID: 380-22874-1

Date Collected: 10/03/22 10:10

Matrix: Water

Date Received: 10/04/22 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	525.2			19592	OTM3	EA MON	10/05/22 09:03
Total/NA	Analysis	525.2		1	19817	Q8LA	EA MON	10/06/22 19:46
Total/NA	Prep	EPA_625		1	O-38146_P			10/06/22 00:00
Total/NA	Analysis	625 PAH Physis LL (EAL) + TICs		1	O-38146	YC		10/09/22 16:22
Total/NA	Analysis	8015 Diesel LL (EAL) and Motor Oil		1	22DSJ032W	SDees		10/17/22 14:04
Total/NA	Analysis	8015 Gas (Purgeable) LL (EAL)		1	22VGH7J02	JChun		10/08/22 15:22

Client Sample ID: TB HALAWA WELLS UNIT 1 331-023

Lab Sample ID: 380-22874-2

Date Collected: 10/03/22 10:10

Matrix: Water

Date Received: 10/04/22 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015 Gas (Purgeable) LL (EAL)		1	22VGH7J02	JChun		10/08/22 15:56

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: 380-22874-1

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

Accreditation/Certification Summary

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

Job ID: 380-22874-1

Laboratory: Eurofins Eaton Monrovia (Continued)

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

Authority	Program	Identification Number	Expiration Date
-----------	---------	-----------------------	-----------------

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

Analysis Method	Prep Method	Matrix	Analyte
525.2	525.2	Water	gamma-Chlordane
525.2	525.2	Water	Indeno[1,2,3-cd]pyrene
525.2	525.2	Water	Isophorone
525.2	525.2	Water	Malathion
525.2	525.2	Water	Molinate
525.2	525.2	Water	Naphthalene
525.2	525.2	Water	Parathion
525.2	525.2	Water	Pendimethalin (Penoxaline)
525.2	525.2	Water	Phenanthrene
525.2	525.2	Water	Pyrene
525.2	525.2	Water	Terbacil
525.2	525.2	Water	Terbutylazine
525.2	525.2	Water	Thiobencarb
525.2	525.2	Water	Total Permethrin (mixed isomers)
525.2	525.2	Water	trans-Nonachlor
525.2	525.2	Water	Trifluralin



Method Summary

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

Job ID: 380-22874-1

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: 380-22874-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
380-22874-1	HALAWA WELLS UNIT 1 331-023	Water	10/03/22 10:10	10/04/22 10:20
380-22874-2	TB HALAWA WELLS UNIT 1 331-023	Water	10/03/22 10:10	10/04/22 10:20

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

Date: 10-28-2022
EMAX Batch No.: 22J047

Attn: Jackie Contreras

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

Subject: Laboratory Report
Project: 380-22874

Enclosed is the Laboratory report for samples received on 10/05/22.
The data reported relate only to samples listed below :

Sample ID	Control #	Col Date	Matrix	Analysis
380-22874-1	J047-01	10/03/22	WATER	TPH GASOLINE
380-22874-2	J047-02	10/03/22	WATER	TPH DIESEL & MOTOR OIL TPH GASOLINE

The results are summarized on the following pages.

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

Sincerely yours,

Caspar J. Pang
Laboratory Director

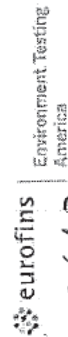
This report is confidential and intended solely for the use of the individual or entity to whom it is addressed. This report shall not be reproduced except in full or without the written approval of EMAX.

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

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

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

Chain of Custody Record



Client Information (Sub Contract Lab)

Lab PM: Arada, Rachelle
 State of Origin: Hawaii
 E-Mail: Rachelle.Arada@eurofins.com

Carrier Tracking Note: **221047**
 COC No: 380-23003.1
 Page: Page 1 of 1
 Job #: 380-22874-1

Company: EMAX Laboratories Inc
 Address: 3051 Fujita Street, Torrance, CA, 90505
 Phone: _____

Due Date Requested: 10/18/2022
 TAT Requested (days): _____

PO #: _____
 WO #: _____
 Project #: 38001111
 SSOW #: _____

Site: Honolulu BWS Sites

Sample Identification - Client ID (Lab ID)

Sample ID	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (Water, Seawater, Wastewater, BT-Tissue, Ash)	Analysis Requested	Special Instructions/Note
HALAWA WELLS UNIT 1 331-023 (380-22874-1)	10/3/22	10:10 Hawaiian	Water	Water	Sub (8015 Diesel LL (EAL) and Motor Oil) Sub (8015 Diesel LL (EAL) and Motor Oil) 8015 Purgeable LL (EAL) Sub (8015 Gas (Purgeable) LL (EAL)) 8015 Gas	See Attached Instructions
TB HALAWA WELLS UNIT 1 331-023 (380-22874-2)	10/3/22	10:10 Hawaiian	Water	Water		See Attached Instructions

Preservation Codes:
 M - Hexane
 N - None
 O - AsNaO2
 P - Na2O4S
 Q - Na2SO3
 R - Na2SO3
 S - H2SO4
 T - TSP Dodecahydrate
 U - Acetone
 V - MCAA
 W - pH 4-5
 Y - Tizma
 Z - other (specify)

Other:
 A - HCL
 B - NaOH
 C - Zn Acetate
 D - Nitric Acid
 E - NH4SO4
 F - MeOH
 G - Amchlor
 H - Ascorbic Acid
 I - Ice
 J - DI Water
 K - EDTA
 L - EDA

Special Instructions/Note:
 See Attached Instructions
 See Attached Instructions

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested: I, II, III, IV, Other (specify) _____
 Primary Deliverable Rank: 2

Empty Kit Relinquished by: _____
 Date: _____

Relinquished by: _____
 Date/Time: 10/3/22 17:45
 Company: CHAM
 Received by: _____
 Date/Time: _____
 Company: _____

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

Cooler Temperature(s) °C and Other Remarks: _____





Type of Delivery <input type="checkbox"/> Fedex <input type="checkbox"/> UPS <input type="checkbox"/> GSO <input type="checkbox"/> Others	Airbill / Tracking Number	ECN <u>22J047</u>
<input type="checkbox"/> EMAX Courier <input checked="" type="checkbox"/> Client Delivery		Recipient <u>Cecilia Chavez</u>
		Date <u>10/6/22</u> 10/5/22 <u>10/6/22</u> Time <u>1745</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)	<input type="checkbox"/> High concentrations expected	<input type="checkbox"/> From Superfund Site	<input type="checkbox"/> Rad screening required		

Note: _____

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 checked="" 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>2.3</u> °C	<input checked="" type="checkbox"/> Cooler 2 <u>3.9</u> °C	<input type="checkbox"/> Cooler 3 _____ °C
	<input type="checkbox"/> Cooler 6 _____ °C	<input type="checkbox"/> Cooler 7 _____ °C	<input type="checkbox"/> Cooler 8 _____ °C
Thermometer:	A - S/N _____	B - 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. NB 10/12/22

NOTES/OBSERVATIONS:
SAMPLE MATRIX IS DRINKING WATER? YES NO

LEGEND:

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

Sample Labeling 11/01/22 [Signature] SRF [Signature]
Date 10/6/22 Date 10/6/22

PM [Signature]
Date 10/12/22

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

380-22874

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

SDG#: 22J047



CASE NARRATIVE

Client : EUROFINS EATON ANALYTICAL

Project: 380-22874

SDG : 22J047

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

A total of two(2) water samples were received on 10/05/22 to be analyzed for Total Petroleum Hydrocarbons by Purge and Trap in accordance with Method 5030B/8015B and project specific requirements.

Holding Time

Samples were analyzed within the prescribed holding time.

Calibration

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

Method Blank

Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. VGH7J02B - 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. VGH7J02L/VGH7J02C 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 J049-01M/J049-01S. Refer to Matrix QC summary form for details.

Surrogate

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

Sample Analysis

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

LAB CHRONICLE
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```

=====
Client      : EUROFINS EATON ANALYTICAL
Project     : 380-22874
=====
SDG NO.    : 22J047
Instrument ID : H7
=====

```

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
									WATER
MBLK1W	VGH7J02B	1	NA	10/08/2210:48	10/08/2210:48	AJ08005A	AJ08004A	22VGH7J02	Method Blank
LCS1W	VGH7J02L	1	NA	10/08/2211:22	10/08/2211:22	AJ08006A	AJ08004A	22VGH7J02	Lab Control Sample (LCS)
LCD1W	VGH7J02C	1	NA	10/08/2211:56	10/08/2211:56	AJ08007A	AJ08004A	22VGH7J02	LCS Duplicate
380-22874-1	J047-01	1	NA	10/08/2215:22	10/08/2215:22	AJ08013A	AJ08004A	22VGH7J02	Field Sample
380-22874-2	J047-02	1	NA	10/08/2215:56	10/08/2215:56	AJ08014A	AJ08004A	22VGH7J02	Field Sample

FN - Filename
% Moist - Percent Moisture



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SAMPLE RESULTS

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

```

=====
Client      : EUROFINS EATON ANALYTICAL   Date Collected: 10/03/22 10:10
Project     : 380-22874                 Date Received: 10/05/22
Batch No.   : 22J047                   Date Extracted: 10/08/22 15:22
Sample ID   : 380-22874-1              Date Analyzed: 10/08/22 15:22
Lab Samp ID: J047-01                   Dilution Factor: 1
Lab File ID: AJ08013A                  Matrix: WATER
Ext Btch ID: 22VGH7J02                 % Moisture: NA
Calib. Ref.: AJ08004A                  Instrument ID: H7
=====

```

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

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromofluorobenzene	0.0373	0.0400	93	60-140

Notes:

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

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

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

```

=====
Client      : EUROFINS EATON ANALYTICAL   Date Collected: 10/03/22 10:10
Project     : 380-22874                   Date Received: 10/05/22
Batch No.   : 22J047                       Date Extracted: 10/08/22 15:56
Sample ID   : 380-22874-2                 Date Analyzed: 10/08/22 15:56
Lab Samp ID: J047-02                       Dilution Factor: 1
Lab File ID: AJ08014A                       Matrix: WATER
Ext Btch ID: 22VGH7J02                     % Moisture: NA
Calib. Ref.: AJ08004A                     Instrument ID: H7
=====

```

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

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromofluorobenzene	0.0382	0.0400	95	60-140

Notes:

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

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

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QC SUMMARIES

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

=====
Client : EUROFINS EATON ANALYTICAL Date Collected: 10/08/22 10:48
Project : 380-22874 Date Received: 10/08/22
Batch No. : 22J047 Date Extracted: 10/08/22 10:48
Sample ID : MBLK1W Date Analyzed: 10/08/22 10:48
Lab Samp ID: VGH7J02B Dilution Factor: 1
Lab File ID: AJ08005A Matrix: WATER
Ext Btch ID: 22VGH7J02 % Moisture: NA
Calib. Ref.: AJ08004A Instrument ID: H7
=====

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

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromofluorobenzene	0.0335	0.0400	84	60-140

=====

Notes:

Parameter H-C Range
Gasoline C6-C10

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

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

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL
PROJECT : 380-22874
BATCH NO. : 22J047
METHOD : 5030B/8015B

```

=====
MATRIX      : WATER                               % MOISTURE:NA
DILUTION FACTOR: 1                               1
SAMPLE ID   : MBLK1W                             LCS1W       LCD1W
LAB SAMPLE ID : VGH7J02B                         VGH7J02L    VGH7J02C
LAB FILE ID  : AJ08005A                         AJ08006A    AJ08007A
DATE PREPARED : 10/08/22 10:48                  10/08/22 11:22
DATE ANALYZED : 10/08/22 10:48                  10/08/22 11:22
PREP BATCH   : 22VGH7J02                         22VGH7J02   22VGH7J02
CALIBRATION REF: AJ08004A                       AJ08004A    AJ08004A
  
```

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	0.536	107	0.500	0.561	112	5	60-130	30

SURROGATE PARAMETER	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	QCLimit (%)
Bromofluorobenzene	0.0400	0.0432	108	0.0400	0.0461	115	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 : 380-22826
BATCH NO. : 22J049
METHOD : 5030B/8015B

```

=====
MATRIX      : WATER                               % MOISTURE:NA
DILUTION FACTOR: 1                               1
SAMPLE ID   : 380-22826-1                       380-22826-1MS
LAB SAMPLE ID : J049-01                         J049-01S
LAB FILE ID  : AJ08009A                        AJ08010A
DATE PREPARED : 10/08/22 13:04                 10/08/22 14:13
DATE ANALYZED : 10/08/22 13:04                 10/08/22 14:13
PREP BATCH   : 22VGH7J02                       22VGH7J02
CALIBRATION REF: AJ08004A                      AJ08004A
  
```

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	0.498	100	0.500	0.490	98	2	50-130	30

SURROGATE PARAMETER	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	QCLimit (%)
Bromofluorobenzene	0.0400	0.0437	109	0.0400	0.0424	106	60-140

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

LABORATORY REPORT FOR

EUROFINS EATON ANALYTICAL

380-22874

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

SDG#: 22J047



CASE NARRATIVE

Client : EUROFINS EATON ANALYTICAL

Project: 380-22874

SDG : 22J047

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

One(1) water sample was received on 10/05/22 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. DSJ032WB - 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 DSJ032WL. 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 22J049-01M/22J049-01S. Refer to Matrix QC summary form for details.

Surrogate

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

Sample Analysis

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

LAB CHRONICLE
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : EUROFINS EATON ANALYTICAL
Project     : 380-22874
=====
SDG NO.    : 22J047
Instrument ID : D5
=====

```

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis		Extraction DateTime	Sample Data FN	Calibration Prep.		Notes
				DateTime	DateTime			Data FN	Batch	
380-22874-1	DSJ032WB	1	NA	10/17/2212:50	10/15/2216:45	LJ17009A	LJ17003A	22DSJ032W	Method Blank	
	DSJ032WL	1	NA	10/17/2213:08	10/15/2216:45	LJ17010A	LJ17003A	22DSJ032W	Lab Control Sample (LCS)	
	J047-01	1	NA	10/17/2214:04	10/15/2216:45	LJ17013A	LJ17003A	22DSJ032W	Field Sample	

FN - Filename
% Moist - Percent Moisture



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SAMPLE RESULTS

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

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=====
Client      : EUROFINS EATON ANALYTICAL   Date Collected: 10/03/22 10:10
Project     : 380-22874                   Date Received: 10/05/22
Batch No.   : 22J047                       Date Extracted: 10/15/22 16:45
Sample ID   : 380-22874-1                 Date Analyzed: 10/17/22 14:04
Lab Samp ID: 22J047-01                   Dilution Factor: 1
Lab File ID: LJ17013A                     Matrix: WATER
Ext Btch ID: 22DSJ032W                   % Moisture: NA
Calib. Ref.: LJ17003A                     Instrument ID: D5
=====

```

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)	
Diesel	ND	0.029	0.014	
Motor Oil	ND	0.058	0.029	
SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.597	0.575	104	60-130
Hexacosane	0.126	0.144	88	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 : 870ml Final Volume : 5ml
Prepared by : DLi Analyzed by : SDeeso

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QC SUMMARIES

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : EUROFINS EATON ANALYTICAL   Date Collected: 10/15/22 16:45
Project     : 380-22874                   Date Received: 10/15/22
Batch No.   : 22J047                       Date Extracted: 10/15/22 16:45
Sample ID   : MBLK1W                       Date Analyzed: 10/17/22 12:50
Lab Samp ID: DSJ032WB                      Dilution Factor: 1
Lab File ID: LJ17009A                      Matrix: WATER
Ext Btch ID: 22DSJ032W                    % Moisture: NA
Calib. Ref.: LJ17003A                     Instrument ID: D5
=====

```

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

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.501	0.500	100	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 : DLi Analyzed by : SDeeso

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL
PROJECT : 380-22874
BATCH NO. : 22J047
METHOD : 3520C/8015B

=====

MATRIX	: WATER	% MOISTURE:NA
DILUTION FACTOR:	1	1
SAMPLE ID	: MBLK1W	LCS1W
LAB SAMPLE ID	: DSJ032WB	DSJ032WL
LAB FILE ID	: LJ17009A	LJ17010A
DATE PREPARED	: 10/15/22 16:45	10/15/22 16:45
DATE ANALYZED	: 10/17/22 12:50	10/17/22 13:08
PREP BATCH	: 22DSJ032W	22DSJ032W
CALIBRATION REF:	LJ17003A	LJ17003A

ACCESSION:

PARAMETERS	MBResult (mg/L)	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	QCLimit (%)
Diesel	ND	2.50	2.38	95	50-130

SURROGATE PARAMETERS	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	QCLimit (%)
Bromobenzene	0.500	0.502	100	60-130
Hexacosane	0.125	0.117	94	60-130

MB: Method Blank sample LCS: Lab Control Sample

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL
PROJECT : 380-22826
BATCH NO. : 22J049
METHOD : 3520C/8015B

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=====
MATRIX      : WATER                                     % MOISTURE:NA
DILUTION FACTOR: 1                                     1
SAMPLE ID   : 380-22826-1                             380-22826-1MSD
LAB SAMPLE ID : 22J049-01                             22J049-01S
LAB FILE ID  : LJ17017A                               LJ17019A
DATE PREPARED : 10/15/22 16:45                       10/15/22 16:45
DATE ANALYZED : 10/17/22 15:18                       10/17/22 15:55
PREP BATCH   : 22DSJ032W                             22DSJ032W
CALIBRATION REF: LJ17003A                             LJ17003A
  
```

ACCESSION:

PARAMETERS	PSResult (mg/L)	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Diesel	ND	2.58	2.31	90	2.65	2.51	95	8	50-130	30

SURROGATE PARAMETERS	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	QCLimit (%)
Bromobenzene	0.515	0.467	91	0.530	0.457	86	60-130
Hexacosane	0.129	0.122	95	0.132	0.132	100	60-130

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

October 12, 2022

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

Project Name: RED-HILL Project # 38001111 Job # 380-22874-1
 Physis Project ID: 1407003-309

Dear Debbie,


Enclosed are the analytical results for the sample submitted to PHYSIS Environmental Laboratories, Inc. (PHYSIS) on 10/5/2022. 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: 1407003-309

RED-HILL Project # 38001111 Job # 380-22874-1

Total Samples: 1

PHYSIS ID	Sample ID	Description	Date	Time	Matrix	Sample Type
100572	HALAWA WELLS UNIT 1	331-023 (380-22874-1)	10/3/2022	10:10	Samplewater	Not Specified

ABBREVIATIONS and ACRONYMS

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

QUALITY ASSURANCE SUMMARY

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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PHYSIS QUALIFIER CODES

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

CASE NARRATIVE

QUALIFIER NOTES

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

ND

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

BIANALYTICALS

REPORT

TERRA AURA
ENVIRONMENTAL LABORATORIES, INC.

Innovative Solutions for Nature

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- 2
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- 5
- 6
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- 8
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- 14
- 15
- 16
- 17

Base/Neutral Extractable Compounds

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed	
Sample ID: 100572-R1	HALAWA WELLS UNIT 1 331-023 (38 Matrix: Samplewater)						Sampled:	03-Oct-22 10:10	Received:	05-Oct-22		
Disalicylidenepropanediamine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-38146	06-Oct-22	09-Oct-22	



Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed	
Sample ID: 100572-R1	HALAWA WELLS UNIT 1 331-023 (38 Matrix: Samplewater)						Sampled:	03-Oct-22 10:10	Received:	05-Oct-22		
(d10-Acenaphthene)	EPA 625.1	% Recovery	85	1			Total		0-38146	06-Oct-22	09-Oct-22	
(d10-Phenanthrene)	EPA 625.1	% Recovery	91	1			Total		0-38146	06-Oct-22	09-Oct-22	
(d12-Chrysene)	EPA 625.1	% Recovery	90	1			Total		0-38146	06-Oct-22	09-Oct-22	
(d12-Perylene)	EPA 625.1	% Recovery	91	1			Total		0-38146	06-Oct-22	09-Oct-22	
(d8-Naphthalene)	EPA 625.1	% Recovery	95	1			Total		0-38146	06-Oct-22	09-Oct-22	
1-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		0-38146	06-Oct-22	09-Oct-22	
1-Methylphenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		0-38146	06-Oct-22	09-Oct-22	
2,3,5-Trimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		0-38146	06-Oct-22	09-Oct-22	
2,6-Dimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		0-38146	06-Oct-22	09-Oct-22	
2-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		0-38146	06-Oct-22	09-Oct-22	
Acenaphthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		0-38146	06-Oct-22	09-Oct-22	
Acenaphthylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		0-38146	06-Oct-22	09-Oct-22	
Anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		0-38146	06-Oct-22	09-Oct-22	
Benz[a]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		0-38146	06-Oct-22	09-Oct-22	
Benzo[a]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		0-38146	06-Oct-22	09-Oct-22	
Benzo[b]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		0-38146	06-Oct-22	09-Oct-22	
Benzo[e]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		0-38146	06-Oct-22	09-Oct-22	
Benzo[g,h,i]perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		0-38146	06-Oct-22	09-Oct-22	
Benzo[k]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		0-38146	06-Oct-22	09-Oct-22	
Biphenyl	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		0-38146	06-Oct-22	09-Oct-22	
Chrysene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		0-38146	06-Oct-22	09-Oct-22	
D benz[a,h]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		0-38146	06-Oct-22	09-Oct-22	
D benzo[a,l]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		0-38146	06-Oct-22	09-Oct-22	
D benzothiophene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		0-38146	06-Oct-22	09-Oct-22	

Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38146	06-Oct-22	09-Oct-22
Fluorene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38146	06-Oct-22	09-Oct-22
Indeno[1,2,3-cd]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38146	06-Oct-22	09-Oct-22
Naphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38146	06-Oct-22	09-Oct-22
Perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38146	06-Oct-22	09-Oct-22
Phenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38146	06-Oct-22	09-Oct-22
Pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38146	06-Oct-22	09-Oct-22



QUALITY CONTROL REPORT

TERRA ENVIRONMENTAL LABORATORIES, INC. AURA

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Base/Neutral Extractable Compounds

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE SOURCE		ACCURACY		PRECISION		QA CODEc
							LEVEL	RESULT	%	LIMITS	%	LIMITS	
Sample ID: 100571-B1		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:		Received:			
		Method: EPA 625.1			Batch ID: O-38146			Prepared: 03-Oct-22		Analyzed: 09-Oct-22			
Disalicylideneprapanediamin	Total	ND	1	0.05	0.1	µg/L							
Sample ID: 100571-BS1		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:		Received:			
		Method: EPA 625.1			Batch ID: O-38146			Prepared: 03-Oct-22		Analyzed: 09-Oct-22			
Disalicylideneprapanediamin	Total	38.7	1	0.05	0.1	µg/L	50	0	77	50 - 150%	PASS		
Sample ID: 100571-BS2		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:		Received:			
		Method: EPA 625.1			Batch ID: O-38146			Prepared: 03-Oct-22		Analyzed: 09-Oct-22			
Disalicylideneprapanediamin	Total	46.1	1	0.05	0.1	µg/L	50	0	92	50 - 150%	PASS	18	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: 100571-B1		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:		Received:		
		Method: EPA 625.1			Batch ID: O-38146			Prepared: 03-Oct-22		Analyzed: 09-Oct-22		
(d10-Acenaphthene)	Total	88	1				% Recovery	100	88	65 - 113%	PASS	
(d10-Phenanthrene)	Total	92	1				% Recovery	100	92	80 - 111%	PASS	
(d12-Chrysene)	Total	88	1				% Recovery	100	88	60 - 139%	PASS	
(d12-Perylene)	Total	83	1				% Recovery	100	83	36 - 161%	PASS	
(d8-Naphthalene)	Total	105	1				% Recovery	100	105	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 CODE	
							LEVEL	RESULT	% LIMITS	% LIMITS		
Sample ID: 100571-BS1		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:		Received:		
Method: EPA 625.1		Batch ID: O-38146			Prepared: 03-Oct-22		Analyzed: 09-Oct-22					
(d10-Acenaphthene)	Total	90	1			% Recovery	100	0	90	65 - 113%	PASS	
(d10-Phenanthrene)	Total	94	1			% Recovery	100	0	94	80 - 111%	PASS	
(d12-Chrysene)	Total	92	1			% Recovery	100	0	92	60 - 139%	PASS	
(d12-Perylene)	Total	96	1			% Recovery	100	0	96	36 - 161%	PASS	
(d8-Naphthalene)	Total	106	1			% Recovery	100	0	106	44 - 119%	PASS	
1-Methylnaphthalene	Total	0.45	1	0.001	0.005	µg/L	0.5	0	90	49 - 117%	PASS	
1-Methylphenanthrene	Total	0.402	1	0.001	0.005	µg/L	0.5	0	80	66 - 127%	PASS	
2,3,5-Trimethylnaphthalene	Total	0.423	1	0.001	0.005	µg/L	0.5	0	85	57 - 120%	PASS	
2,6-Dimethylnaphthalene	Total	0.417	1	0.001	0.005	µg/L	0.5	0	83	54 - 117%	PASS	
2-Methylnaphthalene	Total	0.48	1	0.001	0.005	µg/L	0.5	0	96	47 - 130%	PASS	
Acenaphthene	Total	0.421	1	0.001	0.005	µg/L	0.5	0	84	53 - 131%	PASS	
Acenaphthylene	Total	0.393	1	0.001	0.005	µg/L	0.5	0	79	43 - 140%	PASS	
Anthracene	Total	0.432	1	0.001	0.005	µg/L	0.5	0	86	58 - 135%	PASS	
Benz[a]anthracene	Total	0.464	1	0.001	0.005	µg/L	0.5	0	93	55 - 145%	PASS	
Benzo[a]pyrene	Total	0.398	1	0.001	0.005	µg/L	0.5	0	80	51 - 143%	PASS	
Benzo[b]fluoranthene	Total	0.54	1	0.001	0.005	µg/L	0.5	0	108	46 - 165%	PASS	
Benzo[e]pyrene	Total	0.5	1	0.001	0.005	µg/L	0.5	0	100	42 - 152%	PASS	
Benzo[g,h,i]perylene	Total	0.425	1	0.001	0.005	µg/L	0.5	0	85	63 - 133%	PASS	
Benzo[k]fluoranthene	Total	0.486	1	0.001	0.005	µg/L	0.5	0	97	56 - 145%	PASS	
Biphenyl	Total	0.519	1	0.001	0.005	µg/L	0.5	0	104	56 - 119%	PASS	
Chrysene	Total	0.389	1	0.001	0.005	µg/L	0.5	0	78	56 - 141%	PASS	
Dibenz[a,h]anthracene	Total	0.549	1	0.001	0.005	µg/L	0.5	0	110	55 - 150%	PASS	
Dibenzo[a,l]pyrene	Total	0.404	1	0.001	0.005	µg/L	0.5	0	81	50 - 150%	PASS	
Dibenzothiophene	Total	0.425	1	0.001	0.005	µg/L	0.5	0	85	75 - 113%	PASS	

Polynuclear Aromatic Hydrocarbons

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY		PRECISION		QA CODE _c
							LEVEL	RESULT	%	LIMITS	%	LIMITS	
Fluoranthene	Total	0.402	1	0.001	0.005	µg/L	0.5	0	80	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	0.578	1	0.001	0.005	µg/L	0.5	0	116	50 - 151%	PASS		
Naphthalene	Total	0.447	1	0.001	0.005	µg/L	0.5	0	89	41 - 126%	PASS		
Perylene	Total	0.416	1	0.001	0.005	µg/L	0.5	0	83	48 - 141%	PASS		
Phenanthrene	Total	0.436	1	0.001	0.005	µg/L	0.5	0	87	67 - 127%	PASS		
Pyrene	Total	0.404	1	0.001	0.005	µg/L	0.5	0	81	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: 100571-BS2		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:			Received:				
		Method: EPA 625.1			Batch ID: O-38146			Prepared: 03-Oct-22			Analyzed: 09-Oct-22				
(d10-Acenaphthene)	Total	89	1				% Recovery	100	0	89	65 - 113%	PASS	1	30	PASS
(d10-Phenanthrene)	Total	93	1				% Recovery	100	0	93	80 - 111%	PASS	1	30	PASS
(d12-Chrysene)	Total	87	1				% Recovery	100	0	87	60 - 139%	PASS	6	30	PASS
(d12-Perylene)	Total	94	1				% Recovery	100	0	94	36 - 161%	PASS	2	30	PASS
(d8-Naphthalene)	Total	104	1				% Recovery	100	0	104	44 - 119%	PASS	2	30	PASS
1-Methylnaphthalene	Total	0.44	1	0.001	0.005	µg/L		0.5	0	88	49 - 117%	PASS	2	30	PASS
1-Methylphenanthrene	Total	0.401	1	0.001	0.005	µg/L		0.5	0	80	66 - 127%	PASS	0	30	PASS
2,3,5-Trimethylnaphthalene	Total	0.418	1	0.001	0.005	µg/L		0.5	0	84	57 - 120%	PASS	1	30	PASS
2,6-Dimethylnaphthalene	Total	0.409	1	0.001	0.005	µg/L		0.5	0	82	54 - 117%	PASS	1	30	PASS
2-Methylnaphthalene	Total	0.476	1	0.001	0.005	µg/L		0.5	0	95	47 - 130%	PASS	1	30	PASS
Acenaphthene	Total	0.41	1	0.001	0.005	µg/L		0.5	0	82	53 - 131%	PASS	2	30	PASS
Acenaphthylene	Total	0.384	1	0.001	0.005	µg/L		0.5	0	77	43 - 140%	PASS	3	30	PASS
Anthracene	Total	0.416	1	0.001	0.005	µg/L		0.5	0	83	58 - 135%	PASS	4	30	PASS
Benz[a]anthracene	Total	0.461	1	0.001	0.005	µg/L		0.5	0	92	55 - 145%	PASS	1	30	PASS
Benzo[a]pyrene	Total	0.42	1	0.001	0.005	µg/L		0.5	0	84	51 - 143%	PASS	5	30	PASS
Benzo[b]fluoranthene	Total	0.547	1	0.001	0.005	µg/L		0.5	0	109	46 - 165%	PASS	1	30	PASS
Benzo[e]pyrene	Total	0.488	1	0.001	0.005	µg/L		0.5	0	98	42 - 152%	PASS	2	30	PASS
Benzo[g,h,i]perylene	Total	0.415	1	0.001	0.005	µg/L		0.5	0	83	63 - 133%	PASS	2	30	PASS
Benzo[k]fluoranthene	Total	0.478	1	0.001	0.005	µg/L		0.5	0	96	56 - 145%	PASS	1	30	PASS
Biphenyl	Total	0.503	1	0.001	0.005	µg/L		0.5	0	101	56 - 119%	PASS	3	30	PASS
Chrysene	Total	0.374	1	0.001	0.005	µg/L		0.5	0	75	56 - 141%	PASS	4	30	PASS
Dibenz[a,h]anthracene	Total	0.554	1	0.001	0.005	µg/L		0.5	0	111	55 - 150%	PASS	1	30	PASS
Dibenzo[a,l]pyrene	Total	0.427	1	0.001	0.005	µg/L		0.5	0	85	50 - 150%	PASS	5	30	PASS
Dibenzothiophene	Total	0.418	1	0.001	0.005	µg/L		0.5	0	84	75 - 113%	PASS	1	30	PASS

Polynuclear Aromatic Hydrocarbons

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY		PRECISION		QA CODE _c	
							LEVEL	RESULT	%	LIMITS	%	LIMITS		
Fluoranthene	Total	0.394	1	0.001	0.005	µg/L	0.5	0	79	60 - 146%	PASS	1	30	PASS
Fluorene	Total	0.421	1	0.001	0.005	µg/L	0.5	0	84	58 - 131%	PASS	2	30	PASS
Indeno[1,2,3-cd]pyrene	Total	0.598	1	0.001	0.005	µg/L	0.5	0	120	50 - 151%	PASS	3	30	PASS
Naphthalene	Total	0.432	1	0.001	0.005	µg/L	0.5	0	86	41 - 126%	PASS	3	30	PASS
Perylene	Total	0.403	1	0.001	0.005	µg/L	0.5	0	81	48 - 141%	PASS	2	30	PASS
Phenanthrene	Total	0.421	1	0.001	0.005	µg/L	0.5	0	84	67 - 127%	PASS	4	30	PASS
Pyrene	Total	0.4	1	0.001	0.005	µg/L	0.5	0	80	54 - 156%	PASS	1	30	PASS

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PHYSIS

TENTATIVELY

IDENTIFIED COMPOUNDS

ENVIRONMENTAL LABORATORIES, INC.

Innovative Solutions for Nature

Sample ID: 100572

RT	Area Pct	Concentration (ng/L)	Library/ID	Cas Number	Match Qual
32.3552	6.4642	1111	Anthracene-D10-	1719-06-8	97
No detectable TICs were identified in this sample.					

Concentration estimated using the response for Anthracene-d10

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Sample ID: Lab Blank Batch O-38146

RT	Area Pct	Concentration (ng/L)	Library/ID	Cas Number	Match Qual
32.3578	8.5617	1111	Anthracene-D10-	1517-22-2	96
No detectable TICs were identified in this sample.					

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: 1407003-309
 Client Name: Eurofins Eaton Analytical
 Project Name: RED-HILL Project # 38001111 Job # 380-22874-1
 COC Page Number: 2 of 2
 Bottle Label Color: NA

Sample Receipt Summary

Receiving Info

- Initials Received By: JD
- Date Received: 10/5/22
- Time Received: 1352
- Client Name: Eurofins
- Courier Information: (Please circle)
 - Client
 - UPS
 - Area Fast
 - DRS
 - FedEx
 - GSO/GLS
 - Ontrac
 - PAMS
 - PHYSIS Driver:
 - Start Time: _____
 - End Time: _____
 - Total Mileage: _____
 - Number of Pickups: _____
- Container Information: (Please put the # of containers or circle none)
 - Cooler
 - Styrofoam Cooler
 - Boxes
 - None
 - Carboy(s)
 - Carboy Trash Can(s)
 - Carboy Cap(s)
 - Other _____
- What type of ice was used: (Please circle any that apply)
 - Wet Ice
 - Blue Ice
 - Dry Ice
 - Water
 - None
- Randomly Selected Samples Temperature (°C): 4.2
Used I/R Thermometer # 1-2

Inspection Info

- Initials Inspected By: JD

Sample Integrity Upon Receipt:

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

Notes:

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: 03OCT22
ACTWGT: 75.00 LB
CAD: 100205419/INET4530

BILL RECIPIENT

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

581JIAC5FFE2D

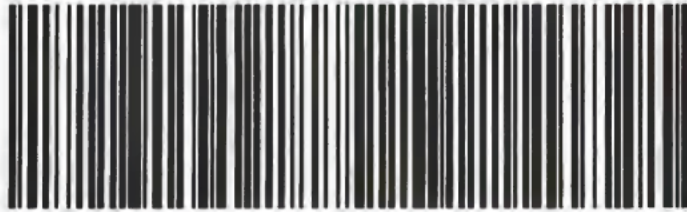
(626) 386-1178 REF:
INV. PO: DEPT:



TUE - 04 OCT 10:30A
PRIORITY OVERNIGHT

TRK# 7701 0213 5535
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.

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: In Process
 Prepared By: Davis Haley
 Deliver By Date: 9/26/2022 11:59:00PM
 Lab Project Number: 38001111
 PWSID: HI0000331

Order Completion Information

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

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



Eaton Analytical

INTERNAL CHAIN OF CUSTODY RECORD

EEA Folder Number:

SAMPLE TEMP RECEIVED:

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

SAMPLES REC'D DAY OF COLLECTION? Yes / No

IR Gun ID = 6304 (Observation = 5.0 °C) (Corr. Factor 0.1 °C) (Final = 4.9 °C)

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

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

Compliance Acceptance Criteria:

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

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

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

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

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

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

7) VOA and Radon Headspace:

No Samples with Headspace:

Samples with Headspace (see below):

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

Exempt from headspace concerns: Methods 515.4, HAA(6251,562), 505, SPME, @CH, 532LCMS, 558, 536, Anatoxin, LCMS methods using 40 ml vials, International ellants:

Samp ID	Bottle #	None/<6 mm	>6mm	Test	Samp ID	Bottle #	None/<6 mm	>6mm	Test	Samp ID	Bottle #	None/<6 mm	>6mm	Test	Samp ID	Bottle #	None/<6 mm	>6mm	Test	

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

SIGNATURE	PRINT NAME	COMPANY/TITLE	DATE	TIME
RECEIVED BY: <u>Mark</u>	<u>Mark Arcutia</u>	Eurofins Eaton Analytical	<u>10/4/22</u>	<u>1020</u>
SIGNATURE	PRINT NAME	COMPANY/TITLE	DATE	TIME
SAMPLES CHECKED AGAINST COC BY: <u>[Signature]</u>	<u>GREITNER</u>	Eurofins Eaton Analytical	<u>10/04/2022</u>	<u>14:22</u>

Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-22874-1

Login Number: 22874

List Number: 1

Creator: Elyas, Matthew

List Source: Eurofins Eaton Monrovia

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