

ANALYTICAL REPORT

PREPARED FOR

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

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JOB DESCRIPTION

RED-HILL
RUSH Weekly Red Hill

JOB NUMBER

380-29656-1

Eurofins Eaton Monrovia

Job Notes

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

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

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

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

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

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

Compliance Statement

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

Authorization



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Authorized for release by
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Definitions/Glossary

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

Job ID: 380-29656-1

Qualifiers

GC/MS Semi VOA

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

GC/MS Semi VOA TICs

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

Subcontract

Qualifier	Qualifier Description
U	This analyte was not detected.

Glossary

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

Case Narrative

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

Job ID: 380-29656-1

Job ID: 380-29656-1

Laboratory: Eurofins Eaton Monrovia

Narrative

Job Narrative 380-29656-1

Comments

No additional comments.

Receipt

The samples were received on 11/30/2022 10:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.9° 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 Gas (Purgeable) LL (EAL), 8015 LL DRO/MRO: 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: 380-29656-1

Client Sample ID: MOANALUA WELLS (331-223-TP202)
PWSID Number: HI0000331

Lab Sample ID: 380-29656-1

No Detections.

Client Sample ID: TB MOANALUA WELLS (331-223-TP202)

Lab Sample ID: 380-29656-2

No Detections.

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

This Detection Summary does not include radiochemical test results.

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Client Sample Results

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

Job ID: 380-29656-1

Client Sample ID: MOANALUA WELLS (331-223-TP202)

Lab Sample ID: 380-29656-1

Date Collected: 11/28/22 11:15

Matrix: Drinking Water

Date Received: 11/30/22 10:00

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		0.098	ug/L		12/05/22 06:56	12/07/22 17:53	1
2,4'-DDD	ND		0.098	ug/L		12/05/22 06:56	12/07/22 17:53	1
2,4'-DDE	ND		0.098	ug/L		12/05/22 06:56	12/07/22 17:53	1
2,4'-DDT	ND		0.098	ug/L		12/05/22 06:56	12/07/22 17:53	1
2,4-Dinitrotoluene	ND		0.098	ug/L		12/05/22 06:56	12/07/22 17:53	1
2,6-Dinitrotoluene	ND		0.098	ug/L		12/05/22 06:56	12/07/22 17:53	1
2-Methylnaphthalene	ND		0.098	ug/L		12/05/22 06:56	12/07/22 17:53	1
4,4'-DDD	ND		0.098	ug/L		12/05/22 06:56	12/07/22 17:53	1
4,4'-DDE	ND		0.098	ug/L		12/05/22 06:56	12/07/22 17:53	1
4,4'-DDT	ND		0.098	ug/L		12/05/22 06:56	12/07/22 17:53	1
Acenaphthene	ND		0.098	ug/L		12/05/22 06:56	12/07/22 17:53	1
Acenaphthylene	ND		0.098	ug/L		12/05/22 06:56	12/07/22 17:53	1
Acetochlor	ND		0.098	ug/L		12/05/22 06:56	12/07/22 17:53	1
Alachlor	ND		0.049	ug/L		12/05/22 06:56	12/07/22 17:53	1
alpha-BHC	ND		0.098	ug/L		12/05/22 06:56	12/07/22 17:53	1
alpha-Chlordane	ND		0.049	ug/L		12/05/22 06:56	12/07/22 17:53	1
Anthracene	ND		0.020	ug/L		12/05/22 06:56	12/07/22 17:53	1
Atrazine	ND		0.049	ug/L		12/05/22 06:56	12/07/22 17:53	1
Benz(a)anthracene	ND		0.049	ug/L		12/05/22 06:56	12/07/22 17:53	1
Benzo[a]pyrene	ND		0.020	ug/L		12/05/22 06:56	12/07/22 17:53	1
Benzo[b]fluoranthene	ND		0.020	ug/L		12/05/22 06:56	12/07/22 17:53	1
Benzo[g,h,i]perylene	ND		0.049	ug/L		12/05/22 06:56	12/07/22 17:53	1
Benzo[k]fluoranthene	ND		0.020	ug/L		12/05/22 06:56	12/07/22 17:53	1
beta-BHC	ND		0.098	ug/L		12/05/22 06:56	12/07/22 17:53	1
Bis(2-ethylhexyl) phthalate	ND		0.59	ug/L		12/05/22 06:56	12/07/22 17:53	1
Bromacil	ND		0.098	ug/L		12/05/22 06:56	12/07/22 17:53	1
Butachlor	ND		0.049	ug/L		12/05/22 06:56	12/07/22 17:53	1
Butylbenzylphthalate	ND		0.49	ug/L		12/05/22 06:56	12/07/22 17:53	1
Chlorobenzilate	ND		0.098	ug/L		12/05/22 06:56	12/07/22 17:53	1
Chloroneb	ND		0.098	ug/L		12/05/22 06:56	12/07/22 17:53	1
Chlorothalonil (Draconil, Bravo)	ND	^3+	0.098	ug/L		12/05/22 06:56	12/07/22 17:53	1
Chlorpyrifos	ND		0.049	ug/L		12/05/22 06:56	12/07/22 17:53	1
Chrysene	ND		0.020	ug/L		12/05/22 06:56	12/07/22 17:53	1
delta-BHC	ND		0.098	ug/L		12/05/22 06:56	12/07/22 17:53	1
Di(2-ethylhexyl)adipate	ND	^3+	0.59	ug/L		12/05/22 06:56	12/07/22 17:53	1
Dibenz(a,h)anthracene	ND		0.049	ug/L		12/05/22 06:56	12/07/22 17:53	1
Diclorvos (DDVP)	ND		0.049	ug/L		12/05/22 06:56	12/07/22 17:53	1
Dieldrin	ND		0.20	ug/L		12/05/22 06:56	12/07/22 17:53	1
Diethylphthalate	ND		0.49	ug/L		12/05/22 06:56	12/07/22 17:53	1
Dimethylphthalate	ND		0.49	ug/L		12/05/22 06:56	12/07/22 17:53	1
Di-n-butyl phthalate	ND		0.98	ug/L		12/05/22 06:56	12/07/22 17:53	1
Di-n-octyl phthalate	ND		0.098	ug/L		12/05/22 06:56	12/07/22 17:53	1
Endosulfan I (Alpha)	ND		0.098	ug/L		12/05/22 06:56	12/07/22 17:53	1
Endosulfan II (Beta)	ND		0.098	ug/L		12/05/22 06:56	12/07/22 17:53	1
Endosulfan sulfate	ND		0.098	ug/L		12/05/22 06:56	12/07/22 17:53	1
Endrin	ND		0.098	ug/L		12/05/22 06:56	12/07/22 17:53	1
Endrin aldehyde	ND		0.098	ug/L		12/05/22 06:56	12/07/22 17:53	1
EPTC	ND		0.098	ug/L		12/05/22 06:56	12/07/22 17:53	1
Fluoranthene	ND		0.098	ug/L		12/05/22 06:56	12/07/22 17:53	1

Eurofins Eaton Monrovia

Client Sample Results

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

Job ID: 380-29656-1

Client Sample ID: MOANALUA WELLS (331-223-TP202)

Lab Sample ID: 380-29656-1

Date Collected: 11/28/22 11:15

Matrix: Drinking Water

Date Received: 11/30/22 10:00

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	ND		0.049	ug/L		12/05/22 06:56	12/07/22 17:53	1
gamma-Chlordane	ND		0.049	ug/L		12/05/22 06:56	12/07/22 17:53	1
Heptachlor	ND		0.039	ug/L		12/05/22 06:56	12/07/22 17:53	1
Heptachlor epoxide (isomer B)	ND		0.049	ug/L		12/05/22 06:56	12/07/22 17:53	1
Hexachlorobenzene	ND		0.049	ug/L		12/05/22 06:56	12/07/22 17:53	1
Hexachlorocyclopentadiene	ND		0.049	ug/L		12/05/22 06:56	12/07/22 17:53	1
Indeno[1,2,3-cd]pyrene	ND		0.049	ug/L		12/05/22 06:56	12/07/22 17:53	1
Isophorone	ND		0.49	ug/L		12/05/22 06:56	12/07/22 17:53	1
Lindane	ND		0.039	ug/L		12/05/22 06:56	12/07/22 17:53	1
Malathion	ND		0.098	ug/L		12/05/22 06:56	12/07/22 17:53	1
Methoxychlor	ND		0.098	ug/L		12/05/22 06:56	12/07/22 17:53	1
Metolachlor	ND		0.049	ug/L		12/05/22 06:56	12/07/22 17:53	1
Metribuzin	ND		0.049	ug/L		12/05/22 06:56	12/07/22 17:53	1
Molinate	ND		0.098	ug/L		12/05/22 06:56	12/07/22 17:53	1
Naphthalene	ND		0.29	ug/L		12/05/22 06:56	12/07/22 17:53	1
Parathion	ND		0.098	ug/L		12/05/22 06:56	12/07/22 17:53	1
Pendimethalin (Penoxaline)	ND		0.098	ug/L		12/05/22 06:56	12/07/22 17:53	1
Phenanthrene	ND		0.039	ug/L		12/05/22 06:56	12/07/22 17:53	1
Propachlor	ND		0.049	ug/L		12/05/22 06:56	12/07/22 17:53	1
Pyrene	ND		0.049	ug/L		12/05/22 06:56	12/07/22 17:53	1
Simazine	ND		0.049	ug/L		12/05/22 06:56	12/07/22 17:53	1
Terbacil	ND		0.098	ug/L		12/05/22 06:56	12/07/22 17:53	1
Terbuthylazine	ND		0.098	ug/L		12/05/22 06:56	12/07/22 17:53	1
Thiobencarb	ND		0.20	ug/L		12/05/22 06:56	12/07/22 17:53	1
Total Permethrin (mixed isomers)	ND		0.20	ug/L		12/05/22 06:56	12/07/22 17:53	1
trans-Nonachlor	ND		0.049	ug/L		12/05/22 06:56	12/07/22 17:53	1
Trifluralin	ND		0.098	ug/L		12/05/22 06:56	12/07/22 17:53	1

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Tentatively Identified Compound	None		ug/L				12/05/22 06:56	12/07/22 17:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	105		70 - 130	12/05/22 06:56	12/07/22 17:53	1
Perylene-d12	96		70 - 130	12/05/22 06:56	12/07/22 17:53	1
Triphenylphosphate	100		70 - 130	12/05/22 06:56	12/07/22 17:53	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		12/05/22 00:00	12/18/22 15:09	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/18/22 15:09	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/18/22 15:09	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/18/22 15:09	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/18/22 15:09	1
Acenaphthene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/18/22 15:09	1
Acenaphthylene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/18/22 15:09	1
Anthracene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/18/22 15:09	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/18/22 15:09	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/18/22 15:09	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/18/22 15:09	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/18/22 15:09	1

Eurofins Eaton Monrovia

Client Sample Results

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

Job ID: 380-29656-1

Client Sample ID: MOANALUA WELLS (331-223-TP202)

Lab Sample ID: 380-29656-1

Date Collected: 11/28/22 11:15

Matrix: Drinking Water

Date Received: 11/30/22 10:00

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/18/22 15:09	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/18/22 15:09	1
Biphenyl	ND		0.005	0.001	µg/L		12/05/22 00:00	12/18/22 15:09	1
Chrysene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/18/22 15:09	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/18/22 15:09	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/18/22 15:09	1
Dibenzothiophene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/18/22 15:09	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		12/05/22 00:00	12/18/22 15:09	1
Fluoranthene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/18/22 15:09	1
Fluorene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/18/22 15:09	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/18/22 15:09	1
Naphthalene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/18/22 15:09	1
Perylene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/18/22 15:09	1
Phenanthrene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/18/22 15:09	1
Pyrene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/18/22 15:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	80		45 - 118	12/05/22 00:00	12/18/22 15:09	1
(d10-Phenanthrene)	84		56 - 123	12/05/22 00:00	12/18/22 15:09	1
(d12-Chrysene)	86		36 - 142	12/05/22 00:00	12/18/22 15:09	1
(d12-Perylene)	79		36 - 161	12/05/22 00:00	12/18/22 15:09	1
(d8-Naphthalene)	70		20 - 112	12/05/22 00:00	12/18/22 15:09	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GASOLINE	ND	U	0.020		mg/L			12/01/22 21:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
BROMOFLUOROBENZENE	93		60 - 140		12/01/22 21:17	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DIESEL	ND	U	0.025		mg/L			12/03/22 23:01	1
MOTOR OIL	ND	U	0.050		mg/L			12/03/22 23:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
BROMOBENZENE	86		60 - 130		12/03/22 23:01	1
HEXACOSANE	103		60 - 130		12/03/22 23:01	1

Client Sample ID: TB MOANALUA WELLS (331-223-TP202)

Lab Sample ID: 380-29656-2

Date Collected: 11/28/22 11:15

Matrix: Water

Date Received: 11/30/22 10:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GASOLINE	ND	U	0.020		mg/L			12/01/22 21:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
BROMOFLUOROBENZENE	94		60 - 140		12/01/22 21:53	1

Action Limit Summary

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

Job ID: 380-29656-1

Client Sample ID: MOANALUA WELLS (331-223-TP202)
PWSID Number: HI0000331

Lab Sample ID: 380-29656-1

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

Surrogate Summary

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

Job ID: 380-29656-1

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

Matrix: Drinking Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		2NMX (70-130)	PRY (70-130)	TPP (70-130)
380-29656-1	MOANALUA WELLS (331-223-T	105	96	100

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

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)
380-29506-B-2-A MS	Matrix Spike	102	98	105
380-29506-B-3-A DU	Duplicate	107	82	106
LCS 380-25686/3-A	Lab Control Sample	102	96	106
LCS 380-25686/4-A	Lab Control Sample Dup	103	91	107
MB 380-25686/1-A	Method Blank	104	93	108
MRL 380-25686/2-A	Lab Control Sample	102	96	105

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 (27-133)	Phenanth (43-129)	CRY (52-144)	NPT (25-125)	PRY (36-161)
102126-B1	Method Blank	81	88	88	83	82
102126-BS1	Lab Control Sample	74	88	91	69	91
102126-BS2	Lab Control Sample Dup	88	87	88	79	90

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

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

Matrix: Drinking Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)				
		Acenaphtl (45-118)	Phenanth (56-123)	CRY (36-142)	NPT (20-112)	PRY (36-161)
380-29656-1	MOANALUA WELLS (331-223-T	80	84	86	70	79

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

Eurofins Eaton Monrovia

Surrogate Summary

Client: City & County of Honolulu

Job ID: 380-29656-1

Project/Site: RED-HILL

CRY = (d12-Chrysene)

NPT = (d8-Naphthalene)

PRY = (d12-Perylene)

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

Matrix: Drinking Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB (60-140)
380-29656-1	MOANALUA WELLS (331-223-T	93

Surrogate Legend

BFB = BROMOFLUOROBENZENE

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

Matrix: WATER

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB (70-130)
22VGH7L01C	LCD	115
22VGH7L01L	Lab Control Sample	116

Surrogate Legend

BFB = BROMOFLUOROBENZENE

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB (60-140)
380-29656-2	TB MOANALUA WELLS (331-223-T	94

Surrogate Legend

BFB = BROMOFLUOROBENZENE

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

Matrix: WATER

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB
22VGH7L01B	Method Blank	

Surrogate Legend

BFB = BROMOFLUOROBENZENE

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

Matrix: Drinking Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BB (60-130)	HEXACOSANE (60-130)
380-29656-1	MOANALUA WELLS (331-223-T	86	103

Surrogate Legend

BB = BROMOBENZENE

HEXACOSANE = HEXACOSANE

Eurofins Eaton Monrovia

Surrogate Summary

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

Job ID: 380-29656-1

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

Matrix: WATER

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

BB XACOSAI

Lab Sample ID	Client Sample ID
22DSL002WB	Method Blank

Surrogate Legend

BB = BROMOBENZENE
HEXACOSANE = HEXACOSANE

Method: 8015 LL DRO/MRO - 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
22DSL002WC	LCD
22DSL002WL	Lab Control Sample

Surrogate Legend

BB = BROMOBENZENE
HEXACOSANE = HEXACOSANE

QC Sample Results

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

Job ID: 380-29656-1

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

Lab Sample ID: MB 380-25686/1-A
Matrix: Water
Analysis Batch: 25943

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 25686

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		0.099	ug/L		12/05/22 06:56	12/07/22 13:31	1
2,4'-DDD	ND		0.099	ug/L		12/05/22 06:56	12/07/22 13:31	1
2,4'-DDE	ND		0.099	ug/L		12/05/22 06:56	12/07/22 13:31	1
2,4'-DDT	ND		0.099	ug/L		12/05/22 06:56	12/07/22 13:31	1
2,4-Dinitrotoluene	ND		0.099	ug/L		12/05/22 06:56	12/07/22 13:31	1
2,6-Dinitrotoluene	ND		0.099	ug/L		12/05/22 06:56	12/07/22 13:31	1
2-Methylnaphthalene	ND		0.099	ug/L		12/05/22 06:56	12/07/22 13:31	1
4,4'-DDD	ND		0.099	ug/L		12/05/22 06:56	12/07/22 13:31	1
4,4'-DDE	ND		0.099	ug/L		12/05/22 06:56	12/07/22 13:31	1
4,4'-DDT	ND		0.099	ug/L		12/05/22 06:56	12/07/22 13:31	1
Acenaphthene	ND		0.099	ug/L		12/05/22 06:56	12/07/22 13:31	1
Acenaphthylene	ND		0.099	ug/L		12/05/22 06:56	12/07/22 13:31	1
Acetochlor	ND		0.099	ug/L		12/05/22 06:56	12/07/22 13:31	1
Alachlor	ND		0.050	ug/L		12/05/22 06:56	12/07/22 13:31	1
alpha-BHC	ND		0.099	ug/L		12/05/22 06:56	12/07/22 13:31	1
alpha-Chlordane	ND		0.050	ug/L		12/05/22 06:56	12/07/22 13:31	1
Anthracene	ND		0.020	ug/L		12/05/22 06:56	12/07/22 13:31	1
Atrazine	ND		0.050	ug/L		12/05/22 06:56	12/07/22 13:31	1
Benz(a)anthracene	ND		0.050	ug/L		12/05/22 06:56	12/07/22 13:31	1
Benzo[a]pyrene	ND		0.020	ug/L		12/05/22 06:56	12/07/22 13:31	1
Benzo[b]fluoranthene	ND		0.020	ug/L		12/05/22 06:56	12/07/22 13:31	1
Benzo[g,h,i]perylene	ND		0.050	ug/L		12/05/22 06:56	12/07/22 13:31	1
Benzo[k]fluoranthene	ND		0.020	ug/L		12/05/22 06:56	12/07/22 13:31	1
beta-BHC	ND		0.099	ug/L		12/05/22 06:56	12/07/22 13:31	1
Bis(2-ethylhexyl) phthalate	ND		0.60	ug/L		12/05/22 06:56	12/07/22 13:31	1
Bromacil	ND		0.099	ug/L		12/05/22 06:56	12/07/22 13:31	1
Butachlor	ND		0.050	ug/L		12/05/22 06:56	12/07/22 13:31	1
Butylbenzylphthalate	ND		0.50	ug/L		12/05/22 06:56	12/07/22 13:31	1
Chlorobenzilate	ND		0.099	ug/L		12/05/22 06:56	12/07/22 13:31	1
Chloroneb	ND		0.099	ug/L		12/05/22 06:56	12/07/22 13:31	1
Chlorothalonil (Draconil, Bravo)	ND		0.099	ug/L		12/05/22 06:56	12/07/22 13:31	1
Chlorpyrifos	ND		0.050	ug/L		12/05/22 06:56	12/07/22 13:31	1
Chrysene	ND		0.020	ug/L		12/05/22 06:56	12/07/22 13:31	1
delta-BHC	ND		0.099	ug/L		12/05/22 06:56	12/07/22 13:31	1
Di(2-ethylhexyl)adipate	ND		0.60	ug/L		12/05/22 06:56	12/07/22 13:31	1
Dibenz(a,h)anthracene	ND		0.050	ug/L		12/05/22 06:56	12/07/22 13:31	1
Diclorvos (DDVP)	ND		0.050	ug/L		12/05/22 06:56	12/07/22 13:31	1
Dieldrin	ND		0.20	ug/L		12/05/22 06:56	12/07/22 13:31	1
Diethylphthalate	ND		0.50	ug/L		12/05/22 06:56	12/07/22 13:31	1
Dimethylphthalate	ND		0.50	ug/L		12/05/22 06:56	12/07/22 13:31	1
Di-n-butyl phthalate	ND		0.99	ug/L		12/05/22 06:56	12/07/22 13:31	1
Di-n-octyl phthalate	ND		0.099	ug/L		12/05/22 06:56	12/07/22 13:31	1
Endosulfan I (Alpha)	ND		0.099	ug/L		12/05/22 06:56	12/07/22 13:31	1
Endosulfan II (Beta)	ND		0.099	ug/L		12/05/22 06:56	12/07/22 13:31	1
Endosulfan sulfate	ND		0.099	ug/L		12/05/22 06:56	12/07/22 13:31	1
Endrin	ND		0.099	ug/L		12/05/22 06:56	12/07/22 13:31	1
Endrin aldehyde	ND		0.099	ug/L		12/05/22 06:56	12/07/22 13:31	1
EPTC	ND		0.099	ug/L		12/05/22 06:56	12/07/22 13:31	1

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QC Sample Results

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

Job ID: 380-29656-1

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

Lab Sample ID: MB 380-25686/1-A
Matrix: Water
Analysis Batch: 25943

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 25686

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoranthene	ND		0.099	ug/L		12/05/22 06:56	12/07/22 13:31	1
Fluorene	ND		0.050	ug/L		12/05/22 06:56	12/07/22 13:31	1
gamma-Chlordane	ND		0.050	ug/L		12/05/22 06:56	12/07/22 13:31	1
Heptachlor	ND		0.040	ug/L		12/05/22 06:56	12/07/22 13:31	1
Heptachlor epoxide (isomer B)	ND		0.050	ug/L		12/05/22 06:56	12/07/22 13:31	1
Hexachlorobenzene	ND		0.050	ug/L		12/05/22 06:56	12/07/22 13:31	1
Hexachlorocyclopentadiene	ND		0.050	ug/L		12/05/22 06:56	12/07/22 13:31	1
Indeno[1,2,3-cd]pyrene	ND		0.050	ug/L		12/05/22 06:56	12/07/22 13:31	1
Isophorone	ND		0.50	ug/L		12/05/22 06:56	12/07/22 13:31	1
Lindane	ND		0.040	ug/L		12/05/22 06:56	12/07/22 13:31	1
Malathion	ND		0.099	ug/L		12/05/22 06:56	12/07/22 13:31	1
Methoxychlor	ND		0.099	ug/L		12/05/22 06:56	12/07/22 13:31	1
Metolachlor	ND		0.050	ug/L		12/05/22 06:56	12/07/22 13:31	1
Metribuzin	ND		0.050	ug/L		12/05/22 06:56	12/07/22 13:31	1
Molinate	ND		0.099	ug/L		12/05/22 06:56	12/07/22 13:31	1
Naphthalene	ND		0.30	ug/L		12/05/22 06:56	12/07/22 13:31	1
Parathion	ND		0.099	ug/L		12/05/22 06:56	12/07/22 13:31	1
Pendimethalin (Penoxaline)	ND		0.099	ug/L		12/05/22 06:56	12/07/22 13:31	1
Phenanthrene	ND		0.040	ug/L		12/05/22 06:56	12/07/22 13:31	1
Propachlor	ND		0.050	ug/L		12/05/22 06:56	12/07/22 13:31	1
Pyrene	ND		0.050	ug/L		12/05/22 06:56	12/07/22 13:31	1
Simazine	ND		0.050	ug/L		12/05/22 06:56	12/07/22 13:31	1
Terbacil	ND		0.099	ug/L		12/05/22 06:56	12/07/22 13:31	1
Terbutylazine	ND		0.099	ug/L		12/05/22 06:56	12/07/22 13:31	1
Thiobencarb	ND		0.20	ug/L		12/05/22 06:56	12/07/22 13:31	1
Total Permethrin (mixed isomers)	ND		0.20	ug/L		12/05/22 06:56	12/07/22 13:31	1
trans-Nonachlor	ND		0.050	ug/L		12/05/22 06:56	12/07/22 13:31	1
Trifluralin	ND		0.099	ug/L		12/05/22 06:56	12/07/22 13:31	1

<i>Tentatively Identified Compound</i>	MB Est. Result	MB Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
<i>Unknown</i>	1.76	T J	ug/L		2.36		12/05/22 06:56	12/07/22 13:31	1

<i>Surrogate</i>	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>2-Nitro-m-xylene</i>	104		70 - 130	12/05/22 06:56	12/07/22 13:31	1
<i>Perylene-d12</i>	93		70 - 130	12/05/22 06:56	12/07/22 13:31	1
<i>Triphenylphosphate</i>	108		70 - 130	12/05/22 06:56	12/07/22 13:31	1

Lab Sample ID: LCS 380-25686/3-A
Matrix: Water
Analysis Batch: 25943

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 25686

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1-Methylnaphthalene	1.99	1.96		ug/L		98	70 - 130
2,4'-DDD	1.99	1.89		ug/L		95	70 - 130
2,4'-DDE	1.99	1.93		ug/L		97	70 - 130
2,4'-DDT	1.99	2.04		ug/L		102	70 - 130
2,4-Dinitrotoluene	1.99	1.91		ug/L		96	70 - 130
2,6-Dinitrotoluene	1.99	1.99		ug/L		100	70 - 130

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QC Sample Results

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

Job ID: 380-29656-1

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

Lab Sample ID: LCS 380-25686/3-A

Matrix: Water

Analysis Batch: 25943

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 25686

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2-Methylnaphthalene	1.99	2.01		ug/L		101	70 - 130
4,4'-DDD	1.99	2.09		ug/L		105	70 - 130
4,4'-DDE	1.99	2.00		ug/L		100	70 - 130
4,4'-DDT	1.99	2.00		ug/L		100	70 - 130
Acenaphthene	1.99	1.99		ug/L		100	70 - 130
Acenaphthylene	1.99	1.99		ug/L		100	70 - 130
Acetochlor	1.99	2.05		ug/L		103	70 - 130
Alachlor	1.99	2.05		ug/L		103	70 - 130
alpha-BHC	1.99	2.15		ug/L		108	70 - 130
alpha-Chlordane	1.99	1.87		ug/L		94	70 - 130
Anthracene	1.99	1.92		ug/L		96	70 - 130
Atrazine	1.99	2.13		ug/L		107	70 - 130
Benz(a)anthracene	1.99	2.07		ug/L		104	70 - 130
Benzo[a]pyrene	1.99	2.09		ug/L		105	70 - 130
Benzo[b]fluoranthene	1.99	2.08		ug/L		105	70 - 130
Benzo[g,h,i]perylene	1.99	1.97		ug/L		99	70 - 130
Benzo[k]fluoranthene	1.99	2.11		ug/L		106	70 - 130
beta-BHC	1.99	2.19		ug/L		110	70 - 130
Bis(2-ethylhexyl) phthalate	1.99	1.89		ug/L		95	70 - 130
Bromacil	1.99	2.22		ug/L		112	70 - 130
Butachlor	1.99	2.17		ug/L		109	70 - 130
Butylbenzylphthalate	1.99	2.19		ug/L		110	70 - 130
Chlorobenzilate	1.99	2.17		ug/L		109	70 - 130
Chloroneb	1.99	1.98		ug/L		99	70 - 130
Chlorothalonil (Draconil, Bravo)	1.99	1.94		ug/L		97	70 - 130
Chlorpyrifos	1.99	2.07		ug/L		104	70 - 130
Chrysene	1.99	1.98		ug/L		99	70 - 130
delta-BHC	1.99	2.03		ug/L		102	70 - 130
Di(2-ethylhexyl)adipate	1.99	2.19		ug/L		110	70 - 130
Dibenz(a,h)anthracene	1.99	2.01		ug/L		101	70 - 130
Diclorvos (DDVP)	1.99	2.31		ug/L		116	70 - 130
Dieldrin	1.99	2.14		ug/L		107	70 - 130
Diethylphthalate	1.99	2.13		ug/L		107	70 - 130
Dimethylphthalate	1.99	2.12		ug/L		106	70 - 130
Di-n-butyl phthalate	3.98	3.74		ug/L		94	70 - 130
Di-n-octyl phthalate	1.99	1.95		ug/L		98	70 - 130
Endosulfan I (Alpha)	1.99	1.90		ug/L		95	70 - 130
Endosulfan II (Beta)	1.99	2.11		ug/L		106	70 - 130
Endosulfan sulfate	1.99	2.19		ug/L		110	70 - 130
Endrin	1.99	2.24		ug/L		112	70 - 130
Endrin aldehyde	1.99	1.96		ug/L		98	70 - 130
EPTC	1.99	2.08		ug/L		104	70 - 130
Fluoranthene	1.99	2.04		ug/L		102	70 - 130
Fluorene	1.99	2.04		ug/L		102	70 - 130
gamma-Chlordane	1.99	1.90		ug/L		95	70 - 130
Heptachlor	1.99	1.95		ug/L		98	70 - 130
Heptachlor epoxide (isomer B)	1.99	2.03		ug/L		102	70 - 130
Hexachlorobenzene	1.99	1.98		ug/L		99	70 - 130
Hexachlorocyclopentadiene	1.99	1.98		ug/L		99	70 - 130

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QC Sample Results

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

Job ID: 380-29656-1

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

Lab Sample ID: LCS 380-25686/3-A
Matrix: Water
Analysis Batch: 25943

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 25686

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Indeno[1,2,3-cd]pyrene	1.99	1.98		ug/L		99	70 - 130
Isophorone	1.99	2.12		ug/L		106	70 - 130
Lindane	1.99	2.02		ug/L		102	70 - 130
Malathion	1.99	2.21		ug/L		111	70 - 130
Methoxychlor	1.99	2.28		ug/L		115	70 - 130
Metolachlor	1.99	2.08		ug/L		105	70 - 130
Metribuzin	1.99	2.16		ug/L		108	70 - 130
Molinate	1.99	2.11		ug/L		106	70 - 130
Naphthalene	1.99	1.99		ug/L		100	70 - 130
Parathion	1.99	2.12		ug/L		106	70 - 130
Pendimethalin (Penoxaline)	1.99	2.00		ug/L		100	70 - 130
Phenanthrene	1.99	1.93		ug/L		97	70 - 130
Propachlor	1.99	2.16		ug/L		109	70 - 130
Pyrene	1.99	2.03		ug/L		102	70 - 130
Simazine	1.99	2.18		ug/L		110	70 - 130
Terbacil	1.99	2.14		ug/L		107	70 - 130
Terbutylazine	1.99	2.20		ug/L		110	70 - 130
Thiobencarb	1.99	2.12		ug/L		107	70 - 130
trans-Nonachlor	1.99	1.92		ug/L		97	70 - 130
Trifluralin	1.99	2.01		ug/L		101	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Nitro-m-xylene	102		70 - 130
Perylene-d12	96		70 - 130
Triphenylphosphate	106		70 - 130

Lab Sample ID: LCSD 380-25686/4-A
Matrix: Water
Analysis Batch: 25943

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 25686

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1-Methylnaphthalene	1.99	2.02		ug/L		101	70 - 130	3	20
2,4'-DDD	1.99	1.95		ug/L		98	70 - 130	3	20
2,4'-DDE	1.99	2.03		ug/L		102	70 - 130	5	20
2,4'-DDT	1.99	2.11		ug/L		106	70 - 130	3	20
2,4-Dinitrotoluene	1.99	1.96		ug/L		99	70 - 130	3	20
2,6-Dinitrotoluene	1.99	1.99		ug/L		100	70 - 130	0	20
2-Methylnaphthalene	1.99	2.06		ug/L		103	70 - 130	2	20
4,4'-DDD	1.99	2.20		ug/L		111	70 - 130	5	20
4,4'-DDE	1.99	2.10		ug/L		106	70 - 130	5	20
4,4'-DDT	1.99	2.14		ug/L		107	70 - 130	7	20
Acenaphthene	1.99	2.01		ug/L		101	70 - 130	1	20
Acenaphthylene	1.99	1.98		ug/L		99	70 - 130	1	20
Acetochlor	1.99	2.21		ug/L		111	70 - 130	7	20
Alachlor	1.99	2.06		ug/L		103	70 - 130	0	20
alpha-BHC	1.99	2.11		ug/L		106	70 - 130	2	20
alpha-Chlordane	1.99	2.00		ug/L		100	70 - 130	7	20
Anthracene	1.99	1.99		ug/L		100	70 - 130	4	20

Eurofins Eaton Monrovia

QC Sample Results

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

Job ID: 380-29656-1

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

Lab Sample ID: LCSD 380-25686/4-A
Matrix: Water
Analysis Batch: 25943

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 25686

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	RPD Limit
							Limits	RPD		
Atrazine	1.99	2.16		ug/L		108	70 - 130	1	20	
Benz(a)anthracene	1.99	2.14		ug/L		107	70 - 130	3	20	
Benzo[a]pyrene	1.99	2.03		ug/L		102	70 - 130	3	20	
Benzo[b]fluoranthene	1.99	2.08		ug/L		105	70 - 130	0	20	
Benzo[g,h,i]perylene	1.99	2.06		ug/L		104	70 - 130	4	20	
Benzo[k]fluoranthene	1.99	2.10		ug/L		105	70 - 130	1	20	
beta-BHC	1.99	2.18		ug/L		110	70 - 130	0	20	
Bis(2-ethylhexyl) phthalate	1.99	2.05		ug/L		103	70 - 130	8	20	
Bromacil	1.99	2.34		ug/L		118	70 - 130	5	20	
Butachlor	1.99	2.19		ug/L		110	70 - 130	1	20	
Butylbenzylphthalate	1.99	2.24		ug/L		113	70 - 130	2	20	
Chlorobenzilate	1.99	2.28		ug/L		114	70 - 130	5	20	
Chloroneb	1.99	2.01		ug/L		101	70 - 130	2	20	
Chlorothalonil (Draconil, Bravo)	1.99	2.00		ug/L		101	70 - 130	3	20	
Chlorpyrifos	1.99	2.12		ug/L		107	70 - 130	2	20	
Chrysene	1.99	2.00		ug/L		100	70 - 130	1	20	
delta-BHC	1.99	2.10		ug/L		105	70 - 130	3	20	
Di(2-ethylhexyl)adipate	1.99	2.34		ug/L		117	70 - 130	7	20	
Dibenz(a,h)anthracene	1.99	2.04		ug/L		102	70 - 130	1	20	
Diclorvos (DDVP)	1.99	2.35		ug/L		118	70 - 130	2	20	
Dieldrin	1.99	2.19		ug/L		110	70 - 130	2	20	
Diethylphthalate	1.99	2.11		ug/L		106	70 - 130	1	20	
Dimethylphthalate	1.99	2.09		ug/L		105	70 - 130	2	20	
Di-n-butyl phthalate	3.98	4.27		ug/L		107	70 - 130	13	20	
Di-n-octyl phthalate	1.99	2.05		ug/L		103	70 - 130	5	20	
Endosulfan I (Alpha)	1.99	1.94		ug/L		98	70 - 130	2	20	
Endosulfan II (Beta)	1.99	2.17		ug/L		109	70 - 130	3	20	
Endosulfan sulfate	1.99	2.22		ug/L		112	70 - 130	2	20	
Endrin	1.99	2.24		ug/L		112	70 - 130	0	20	
Endrin aldehyde	1.99	1.98		ug/L		99	70 - 130	1	20	
EPTC	1.99	2.13		ug/L		107	70 - 130	3	20	
Fluoranthene	1.99	2.13		ug/L		107	70 - 130	4	20	
Fluorene	1.99	2.08		ug/L		104	70 - 130	2	20	
gamma-Chlordane	1.99	1.95		ug/L		98	70 - 130	3	20	
Heptachlor	1.99	2.04		ug/L		102	70 - 130	5	20	
Heptachlor epoxide (isomer B)	1.99	2.07		ug/L		104	70 - 130	2	20	
Hexachlorobenzene	1.99	1.98		ug/L		100	70 - 130	0	20	
Hexachlorocyclopentadiene	1.99	2.09		ug/L		105	70 - 130	6	20	
Indeno[1,2,3-cd]pyrene	1.99	2.02		ug/L		101	70 - 130	2	20	
Isophorone	1.99	2.15		ug/L		108	70 - 130	2	20	
Lindane	1.99	2.07		ug/L		104	70 - 130	2	20	
Malathion	1.99	2.25		ug/L		113	70 - 130	1	20	
Methoxychlor	1.99	2.33		ug/L		117	70 - 130	2	20	
Metolachlor	1.99	2.09		ug/L		105	70 - 130	1	20	
Metribuzin	1.99	2.22		ug/L		112	70 - 130	3	20	
Molinate	1.99	2.12		ug/L		107	70 - 130	1	20	
Naphthalene	1.99	2.03		ug/L		102	70 - 130	2	20	
Parathion	1.99	2.28		ug/L		114	70 - 130	7	20	
Pendimethalin (Penoxaline)	1.99	2.06		ug/L		103	70 - 130	3	20	

Eurofins Eaton Monrovia

QC Sample Results

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

Job ID: 380-29656-1

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

Lab Sample ID: LCSD 380-25686/4-A
Matrix: Water
Analysis Batch: 25943

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 25686

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Phenanthrene	1.99	1.99		ug/L		100	70 - 130	3	20
Propachlor	1.99	2.18		ug/L		109	70 - 130	1	20
Pyrene	1.99	2.13		ug/L		107	70 - 130	4	20
Simazine	1.99	2.19		ug/L		110	70 - 130	0	20
Terbacil	1.99	2.23		ug/L		112	70 - 130	4	20
Terbutylazine	1.99	2.16		ug/L		109	70 - 130	2	20
Thiobencarb	1.99	2.14		ug/L		108	70 - 130	1	20
trans-Nonachlor	1.99	2.00		ug/L		100	70 - 130	4	20
Trifluralin	1.99	2.03		ug/L		102	70 - 130	1	20

Surrogate	LCSD %Recovery	LCSD Qualifier	LCSD Limits
2-Nitro-m-xylene	103		70 - 130
Perylene-d12	91		70 - 130
Triphenylphosphate	107		70 - 130

Lab Sample ID: MRL 380-25686/2-A
Matrix: Water
Analysis Batch: 25943

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 25686

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
1-Methylnaphthalene	0.0992	0.113		ug/L		114	50 - 150
2,4'-DDD	0.0992	0.134		ug/L		136	50 - 150
2,4'-DDE	0.0992	0.102		ug/L		103	50 - 150
2,4'-DDT	0.0992	0.0997		ug/L		101	50 - 150
2,4-Dinitrotoluene	0.0992	0.0774	J	ug/L		78	50 - 150
2,6-Dinitrotoluene	0.0992	0.0898	J	ug/L		91	50 - 150
2-Methylnaphthalene	0.0992	0.102		ug/L		103	50 - 150
4,4'-DDD	0.0992	0.119		ug/L		120	50 - 150
4,4'-DDE	0.0992	0.103		ug/L		104	50 - 150
4,4'-DDT	0.0992	0.102		ug/L		103	50 - 150
Acenaphthene	0.0992	0.102		ug/L		103	50 - 150
Acenaphthylene	0.0992	0.0910	J	ug/L		92	50 - 150
Acetochlor	0.0496	0.0586	J	ug/L		118	50 - 150
Alachlor	0.0496	0.0551		ug/L		111	50 - 150
alpha-BHC	0.0992	0.103		ug/L		104	50 - 150
alpha-Chlordane	0.0248	ND		ug/L		111	50 - 150
Anthracene	0.0198	0.0193	J	ug/L		97	50 - 150
Atrazine	0.0496	0.0561		ug/L		113	50 - 150
Benz(a)anthracene	0.0496	0.0509		ug/L		103	50 - 150
Benzo[a]pyrene	0.0198	0.0187	J	ug/L		95	50 - 150
Benzo[b]fluoranthene	0.0198	0.0219		ug/L		110	50 - 150
Benzo[g,h,i]perylene	0.0496	0.0506		ug/L		102	50 - 150
Benzo[k]fluoranthene	0.0198	0.0201		ug/L		101	50 - 150
beta-BHC	0.0992	0.116		ug/L		117	50 - 150
Bis(2-ethylhexyl) phthalate	0.595	0.690		ug/L		116	50 - 150
Bromacil	0.0992	0.101		ug/L		102	50 - 150
Butachlor	0.0496	0.0576		ug/L		116	50 - 150
Butylbenzylphthalate	0.149	0.173	J	ug/L		116	50 - 150

Eurofins Eaton Monrovia

QC Sample Results

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

Job ID: 380-29656-1

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

Lab Sample ID: MRL 380-25686/2-A
Matrix: Water
Analysis Batch: 25943

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 25686

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chlorobenzilate	0.0992	0.106		ug/L		107	50 - 150
Chloroneb	0.0992	0.100		ug/L		101	50 - 150
Chlorothalonil (Draconil, Bravo)	0.0992	0.194	^3+	ug/L		196	50 - 150
Chlorpyrifos	0.0496	0.0620		ug/L		125	50 - 150
Chrysene	0.0198	0.0210		ug/L		106	50 - 150
delta-BHC	0.0992	0.122		ug/L		123	50 - 150
Di(2-ethylhexyl)adipate	0.297	0.463	J ^3+	ug/L		156	50 - 150
Dibenz(a,h)anthracene	0.0496	0.0532		ug/L		107	50 - 150
Diclorvos (DDVP)	0.0496	0.0620		ug/L		125	50 - 150
Dieldrin	0.0992	0.118	J	ug/L		119	50 - 150
Diethylphthalate	0.149	0.171	J	ug/L		115	50 - 150
Dimethylphthalate	0.297	0.308	J	ug/L		104	50 - 150
Di-n-butyl phthalate	0.297	0.350	J	ug/L		118	49 - 243
Di-n-octyl phthalate	0.0992	0.0978	J	ug/L		99	50 - 150
Endosulfan I (Alpha)	0.0992	0.128		ug/L		129	50 - 150
Endosulfan II (Beta)	0.0992	0.130		ug/L		131	50 - 150
Endosulfan sulfate	0.0992	0.0954	J	ug/L		96	50 - 150
Endrin	0.0992	0.137		ug/L		138	50 - 150
Endrin aldehyde	0.0992	0.0878	J	ug/L		89	50 - 150
EPTC	0.0992	0.105		ug/L		106	50 - 150
Fluoranthene	0.0496	0.0525	J	ug/L		106	50 - 150
Fluorene	0.0496	ND		ug/L		100	50 - 150
gamma-Chlordane	0.0248	0.0260	J	ug/L		105	50 - 150
Heptachlor	0.0397	0.0532		ug/L		134	50 - 150
Heptachlor epoxide (isomer B)	0.0496	0.0507		ug/L		102	50 - 150
Hexachlorobenzene	0.0496	0.0480	J	ug/L		97	50 - 150
Hexachlorocyclopentadiene	0.0496	0.0434	J	ug/L		88	50 - 150
Indeno[1,2,3-cd]pyrene	0.0496	0.0503		ug/L		102	50 - 150
Isophorone	0.0992	0.105	J	ug/L		106	50 - 150
Lindane	0.0397	0.0390	J	ug/L		98	50 - 150
Malathion	0.0992	0.0968	J	ug/L		98	50 - 150
Methoxychlor	0.0992	0.100		ug/L		101	50 - 150
Metolachlor	0.0496	0.0521		ug/L		105	50 - 150
Metribuzin	0.0496	0.0484	J	ug/L		98	50 - 150
Molinate	0.0992	0.104		ug/L		105	50 - 150
Naphthalene	0.0992	0.106	J	ug/L		107	50 - 150
Parathion	0.0992	0.107		ug/L		108	50 - 150
Pendimethalin (Penoxaline)	0.0992	0.0755	J	ug/L		76	50 - 150
Phenanthrene	0.0198	0.0257	J	ug/L		130	50 - 150
Propachlor	0.0496	0.0574		ug/L		116	50 - 150
Pyrene	0.0496	0.0485	J	ug/L		98	50 - 150
Simazine	0.0496	0.0447	J	ug/L		90	50 - 150
Terbacil	0.0992	0.118		ug/L		119	50 - 150
Terbutylazine	0.0992	0.103		ug/L		104	50 - 150
Thiobencarb	0.0992	0.104	J	ug/L		105	50 - 150
trans-Nonachlor	0.0248	ND		ug/L		101	50 - 150
Trifluralin	0.0992	0.0803	J	ug/L		81	50 - 150

QC Sample Results

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

Job ID: 380-29656-1

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

Lab Sample ID: MRL 380-25686/2-A
Matrix: Water
Analysis Batch: 25943

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 25686

Surrogate	MRL %Recovery	MRL Qualifier	Limits
2-Nitro-m-xylene	102		70 - 130
Perylene-d12	96		70 - 130
Triphenylphosphate	105		70 - 130

Lab Sample ID: 380-29506-B-2-A MS
Matrix: Water
Analysis Batch: 25943

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 25686

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1-Methylnaphthalene	ND		1.99	1.96		ug/L		99	70 - 130
2,4'-DDD	ND		1.99	1.93		ug/L		97	70 - 130
2,4'-DDE	ND		1.99	1.97		ug/L		99	70 - 130
2,4'-DDT	ND		1.99	2.08		ug/L		105	70 - 130
2,4-Dinitrotoluene	ND		1.99	2.08		ug/L		105	70 - 130
2,6-Dinitrotoluene	ND		1.99	2.10		ug/L		106	70 - 130
2-Methylnaphthalene	ND		1.99	1.97		ug/L		99	70 - 130
4,4'-DDD	ND		1.99	2.20		ug/L		111	70 - 130
4,4'-DDE	ND		1.99	2.11		ug/L		106	70 - 130
4,4'-DDT	ND		1.99	2.12		ug/L		107	70 - 130
Acenaphthene	ND		1.99	2.03		ug/L		102	70 - 130
Acenaphthylene	ND		1.99	1.99		ug/L		100	70 - 130
Acetochlor	ND		1.99	2.13		ug/L		107	70 - 130
Alachlor	ND		1.99	2.06		ug/L		104	70 - 130
alpha-BHC	ND		1.99	2.09		ug/L		105	70 - 130
alpha-Chlordane	ND		1.99	1.99		ug/L		100	70 - 130
Anthracene	ND	F1	1.99	0.590	F1	ug/L		30	70 - 130
Atrazine	ND		1.99	2.11		ug/L		106	70 - 130
Benz(a)anthracene	ND		1.99	1.76		ug/L		89	70 - 130
Benzo[a]pyrene	ND		1.99	1.42		ug/L		72	70 - 130
Benzo[b]fluoranthene	ND		1.99	2.19		ug/L		110	70 - 130
Benzo[g,h,i]perylene	ND		1.99	2.30		ug/L		116	70 - 130
Benzo[k]fluoranthene	ND		1.99	2.25		ug/L		113	70 - 130
beta-BHC	ND		1.99	2.10		ug/L		106	70 - 130
Bis(2-ethylhexyl) phthalate	ND		1.99	2.18		ug/L		99	70 - 130
Bromacil	ND		1.99	2.40		ug/L		121	70 - 130
Butachlor	ND		1.99	2.18		ug/L		110	70 - 130
Butylbenzylphthalate	ND		1.99	2.26		ug/L		114	70 - 130
Chlorobenzilate	ND		1.99	2.31		ug/L		116	70 - 130
Chloroneb	ND		1.99	2.05		ug/L		103	70 - 130
Chlorothalonil (Draconil, Bravo)	ND	^3+	1.99	1.96		ug/L		99	70 - 130
Chlorpyrifos	ND		1.99	2.04		ug/L		103	70 - 130
Chrysene	ND		1.99	1.99		ug/L		100	70 - 130
delta-BHC	ND		1.99	2.13		ug/L		107	70 - 130
Di(2-ethylhexyl)adipate	ND	^3+	1.99	2.37		ug/L		114	70 - 130
Dibenz(a,h)anthracene	ND		1.99	2.30		ug/L		116	70 - 130
Diclorvos (DDVP)	ND		1.99	2.28		ug/L		115	70 - 130
Dieldrin	ND		1.99	2.19		ug/L		110	70 - 130
Diethylphthalate	ND		1.99	2.21		ug/L		111	70 - 130

QC Sample Results

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

Job ID: 380-29656-1

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

Lab Sample ID: 380-29506-B-2-A MS

Matrix: Water

Analysis Batch: 25943

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 25686

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier	Added	Result	Qualifier				
Dimethylphthalate	ND		1.99	2.19		ug/L		110	70 - 130
Di-n-butyl phthalate	ND		3.97	3.97		ug/L		100	70 - 130
Di-n-octyl phthalate	ND		1.99	2.22		ug/L		112	70 - 130
Endosulfan I (Alpha)	ND		1.99	1.89		ug/L		95	70 - 130
Endosulfan II (Beta)	ND		1.99	2.11		ug/L		106	70 - 130
Endosulfan sulfate	ND		1.99	2.19		ug/L		110	70 - 130
Endrin	ND		1.99	2.32		ug/L		117	70 - 130
Endrin aldehyde	ND		1.99	1.93		ug/L		97	70 - 130
EPTC	ND		1.99	2.25		ug/L		113	70 - 130
Fluoranthene	ND		1.99	2.07		ug/L		104	70 - 130
Fluorene	ND		1.99	2.07		ug/L		104	70 - 130
gamma-Chlordane	ND		1.99	1.94		ug/L		98	70 - 130
Heptachlor	ND		1.99	2.01		ug/L		101	70 - 130
Heptachlor epoxide (isomer B)	ND		1.99	1.99		ug/L		100	70 - 130
Hexachlorobenzene	ND		1.99	2.02		ug/L		101	70 - 130
Hexachlorocyclopentadiene	ND		1.99	2.02		ug/L		102	70 - 130
Indeno[1,2,3-cd]pyrene	ND		1.99	2.34		ug/L		118	70 - 130
Isophorone	ND		1.99	2.06		ug/L		104	70 - 130
Lindane	ND		1.99	2.07		ug/L		104	70 - 130
Malathion	ND		1.99	2.20		ug/L		111	70 - 130
Methoxychlor	ND		1.99	2.35		ug/L		118	70 - 130
Metolachlor	ND		1.99	2.17		ug/L		109	70 - 130
Metribuzin	ND		1.99	2.31		ug/L		116	70 - 130
Molinate	ND		1.99	2.30		ug/L		116	70 - 130
Naphthalene	ND		1.99	2.01		ug/L		101	70 - 130
Parathion	ND		1.99	2.21		ug/L		111	70 - 130
Pendimethalin (Penoxaline)	ND		1.99	2.09		ug/L		105	70 - 130
Phenanthrene	ND		1.99	1.98		ug/L		100	70 - 130
Propachlor	ND		1.99	2.23		ug/L		112	70 - 130
Pyrene	ND		1.99	2.03		ug/L		102	70 - 130
Simazine	ND		1.99	2.18		ug/L		110	70 - 130
Terbacil	ND		1.99	2.07		ug/L		104	70 - 130
Terbutylazine	ND		1.99	2.18		ug/L		110	70 - 130
Thiobencarb	ND		1.99	2.10		ug/L		105	70 - 130
trans-Nonachlor	ND		1.99	1.98		ug/L		100	70 - 130
Trifluralin	ND		1.99	2.11		ug/L		106	70 - 130

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
2-Nitro-m-xylene	102		70 - 130
Perylene-d12	98		70 - 130
Triphenylphosphate	105		70 - 130

Lab Sample ID: 380-29506-B-3-A DU

Matrix: Water

Analysis Batch: 25943

Client Sample ID: Duplicate

Prep Type: Total/NA

Prep Batch: 25686

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	RPD	Limit
	Result	Qualifier	Result	Qualifier					
1-Methylnaphthalene	ND		ND		ug/L		NC		20

Eurofins Eaton Monrovia

QC Sample Results

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

Job ID: 380-29656-1

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

Lab Sample ID: 380-29506-B-3-A DU
Matrix: Water
Analysis Batch: 25943

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 25686

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
2-Methylnaphthalene	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
Chlorobenzilate	ND		ND		ug/L		NC	20
Chloroneb	ND		ND		ug/L		NC	20
Chlorothalonil (Draconil, Bravo)	ND	^3+	ND		ug/L		NC	20
Chlorpyrifos	ND		ND		ug/L		NC	20
Chrysene	ND		ND		ug/L		NC	20
delta-BHC	ND		ND		ug/L		NC	20
Di(2-ethylhexyl)adipate	ND	^3+	ND		ug/L		NC	20
Dibenz(a,h)anthracene	ND		ND		ug/L		NC	20
Diclorvos (DDVP)	ND		ND		ug/L		NC	20
Dieldrin	ND		ND		ug/L		NC	20
Diethylphthalate	ND		ND		ug/L		NC	20
Dimethylphthalate	ND		ND		ug/L		NC	20
Di-n-butyl phthalate	ND		ND		ug/L		NC	20
Di-n-octyl phthalate	ND		ND		ug/L		NC	20
Endosulfan I (Alpha)	ND		ND		ug/L		NC	20
Endosulfan II (Beta)	ND		ND		ug/L		NC	20
Endosulfan sulfate	ND		ND		ug/L		NC	20
Endrin	ND		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

Eurofins Eaton Monrovia

QC Sample Results

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

Job ID: 380-29656-1

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

Lab Sample ID: 380-29506-B-3-A DU
Matrix: Water
Analysis Batch: 25943

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 25686

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
gamma-Chlordane	ND		ND		ug/L		NC	20
Heptachlor	ND		ND		ug/L		NC	20
Heptachlor epoxide (isomer B)	ND		ND		ug/L		NC	20
Hexachlorobenzene	ND		ND		ug/L		NC	20
Hexachlorocyclopentadiene	ND		ND		ug/L		NC	20
Indeno[1,2,3-cd]pyrene	ND		ND		ug/L		NC	20
Isophorone	ND		ND		ug/L		NC	20
Lindane	ND		ND		ug/L		NC	20
Malathion	ND		ND		ug/L		NC	20
Methoxychlor	ND		ND		ug/L		NC	20
Metolachlor	ND		ND		ug/L		NC	20
Metribuzin	ND		ND		ug/L		NC	20
Molinate	ND		ND		ug/L		NC	20
Naphthalene	ND		ND		ug/L		NC	20
Parathion	ND		ND		ug/L		NC	20
Pendimethalin (Penoxaline)	ND		ND		ug/L		NC	20
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

Surrogate	DU	DU	Limits
	%Recovery	Qualifier	
2-Nitro-m-xylene	107		70 - 130
Perylene-d12	82		70 - 130
Triphenylphosphate	106		70 - 130

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

Lab Sample ID: 102126-B1
Matrix: BlankMatrix
Analysis Batch: O-40046

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: O-40046_P

Analyte	Blank	Blank	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1-Methylnaphthalene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/17/22 16:47	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/17/22 16:47	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/17/22 16:47	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/17/22 16:47	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/17/22 16:47	1
Acenaphthene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/17/22 16:47	1
Acenaphthylene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/17/22 16:47	1
Anthracene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/17/22 16:47	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/17/22 16:47	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/17/22 16:47	1

Eurofins Eaton Monrovia

QC Sample Results

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

Job ID: 380-29656-1

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

Lab Sample ID: 102126-B1
Matrix: BlankMatrix
Analysis Batch: O-40046

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: O-40046_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/17/22 16:47	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/17/22 16:47	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/17/22 16:47	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/17/22 16:47	1
Biphenyl	ND		0.005	0.001	µg/L		12/05/22 00:00	12/17/22 16:47	1
Chrysene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/17/22 16:47	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/17/22 16:47	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/17/22 16:47	1
Dibenzothiophene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/17/22 16:47	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		12/05/22 00:00	12/17/22 16:47	1
Fluoranthene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/17/22 16:47	1
Fluorene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/17/22 16:47	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/17/22 16:47	1
Naphthalene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/17/22 16:47	1
Perylene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/17/22 16:47	1
Phenanthrene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/17/22 16:47	1
Pyrene	ND		0.005	0.001	µg/L		12/05/22 00:00	12/17/22 16:47	1

Surrogate	Blank %Recovery	Blank Qualifier	Limits	Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	81		27 - 133	12/05/22 00:00	12/17/22 16:47	1
(d10-Phenanthrene)	88		43 - 129	12/05/22 00:00	12/17/22 16:47	1
(d12-Chrysene)	88		52 - 144	12/05/22 00:00	12/17/22 16:47	1
(d12-Perylene)	82		36 - 161	12/05/22 00:00	12/17/22 16:47	1
(d8-Naphthalene)	83		25 - 125	12/05/22 00:00	12/17/22 16:47	1

Lab Sample ID: 102126-BS1
Matrix: BlankMatrix
Analysis Batch: O-40046

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: O-40046_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1-Methylnaphthalene	0.5	0.364		µg/L		73	31 - 128
1-Methylphenanthrene	0.5	0.42		µg/L		84	66 - 127
2,3,5-Trimethylnaphthalene	0.5	0.407		µg/L		81	55 - 122
2,6-Dimethylnaphthalene	0.5	0.377		µg/L		75	48 - 120
2-Methylnaphthalene	0.5	0.36		µg/L		72	47 - 130
Acenaphthene	0.5	0.401		µg/L		80	53 - 131
Acenaphthylene	0.5	0.386		µg/L		77	43 - 140
Anthracene	0.5	0.419		µg/L		84	58 - 135
Benz[a]anthracene	0.5	0.429		µg/L		86	55 - 145
Benzo[a]pyrene	0.5	0.409		µg/L		82	51 - 143
Benzo[b]fluoranthene	0.5	0.42		µg/L		84	46 - 165
Benzo[e]pyrene	0.5	0.421		µg/L		84	42 - 152
Benzo[g,h,i]perylene	0.5	0.423		µg/L		85	63 - 133
Benzo[k]fluoranthene	0.5	0.416		µg/L		83	56 - 145
Biphenyl	0.5	0.381		µg/L		76	56 - 119
Chrysene	0.5	0.421		µg/L		84	56 - 141
Dibenz[a,h]anthracene	0.5	0.433		µg/L		87	55 - 150
Dibenzo[a,l]pyrene	0.5	0.492		µg/L		98	50 - 150

Eurofins Eaton Monrovia

QC Sample Results

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

Job ID: 380-29656-1

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

Lab Sample ID: 102126-BS1
Matrix: BlankMatrix
Analysis Batch: O-40046

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: O-40046_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Dibenzothiophene	0.5	0.416		µg/L		83	46 - 126
Disalicylidenepranediamine	50	50.3		µg/L		101	50 - 150
Fluoranthene	0.5	0.416		µg/L		83	60 - 146
Fluorene	0.5	0.395		µg/L		79	58 - 131
Indeno[1,2,3-cd]pyrene	0.5	0.419		µg/L		84	50 - 151
Naphthalene	0.5	0.337		µg/L		67	41 - 126
Perylene	0.5	0.413		µg/L		83	48 - 141
Phenanthrene	0.5	0.421		µg/L		84	67 - 127
Pyrene	0.5	0.432		µg/L		86	54 - 156

Surrogate	LCS %Recovery	LCS Qualifier	Limits
(d10-Acenaphthene)	74		27 - 133
(d10-Phenanthrene)	88		43 - 129
(d12-Chrysene)	91		52 - 144
(d12-Perylene)	91		36 - 161
(d8-Naphthalene)	69		25 - 125

Lab Sample ID: 102126-BS2
Matrix: BlankMatrix
Analysis Batch: O-40046

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: O-40046_P

Analyte	Spike Added	LCS DUP Result	LCS DUP Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1-Methylnaphthalene	0.5	0.391		µg/L		78	31 - 128	7	30
1-Methylphenanthrene	0.5	0.43		µg/L		86	66 - 127	2	30
2,3,5-Trimethylnaphthalene	0.5	0.428		µg/L		86	55 - 122	6	30
2,6-Dimethylnaphthalene	0.5	0.396		µg/L		79	48 - 120	5	30
2-Methylnaphthalene	0.5	0.397		µg/L		79	47 - 130	9	30
Acenaphthene	0.5	0.416		µg/L		83	53 - 131	4	30
Acenaphthylene	0.5	0.407		µg/L		81	43 - 140	5	30
Anthracene	0.5	0.428		µg/L		86	58 - 135	2	30
Benz[a]anthracene	0.5	0.415		µg/L		83	55 - 145	4	30
Benzo[a]pyrene	0.5	0.414		µg/L		83	51 - 143	1	30
Benzo[b]fluoranthene	0.5	0.424		µg/L		85	46 - 165	1	30
Benzo[e]pyrene	0.5	0.42		µg/L		84	42 - 152	0	30
Benzo[g,h,i]perylene	0.5	0.407		µg/L		81	63 - 133	5	30
Benzo[k]fluoranthene	0.5	0.416		µg/L		83	56 - 145	0	30
Biphenyl	0.5	0.404		µg/L		81	56 - 119	6	30
Chrysene	0.5	0.409		µg/L		82	56 - 141	2	30
Dibenz[a,h]anthracene	0.5	0.406		µg/L		81	55 - 150	7	30
Dibenzo[a,l]pyrene	0.5	0.455		µg/L		91	50 - 150	7	30
Dibenzothiophene	0.5	0.426		µg/L		85	46 - 126	2	30
Disalicylidenepranediamine	50	53.8		µg/L		108	50 - 150	7	30
Fluoranthene	0.5	0.406		µg/L		81	60 - 146	2	30
Fluorene	0.5	0.417		µg/L		83	58 - 131	5	30
Indeno[1,2,3-cd]pyrene	0.5	0.391		µg/L		78	50 - 151	7	30
Naphthalene	0.5	0.389		µg/L		78	41 - 126	15	30
Perylene	0.5	0.408		µg/L		82	48 - 141	1	30
Phenanthrene	0.5	0.427		µg/L		85	67 - 127	1	30

Eurofins Eaton Monrovia

QC Sample Results

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

Job ID: 380-29656-1

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

Lab Sample ID: 102126-BS2
Matrix: BlankMatrix
Analysis Batch: O-40046

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: O-40046_P

Analyte	Spike Added	LCS DUP Result	LCS DUP Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Pyrene	0.5	0.406		µg/L		81	54 - 156	6	30

Surrogate	LCS DUP %Recovery	LCS DUP Qualifier	Limits
(d10-Acenaphthene)	88		27 - 133
(d10-Phenanthrene)	87		43 - 129
(d12-Chrysene)	88		52 - 144
(d12-Perylene)	90		36 - 161
(d8-Naphthalene)	79		25 - 125

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

Lab Sample ID: 22VGH7L01B
Matrix: WATER
Analysis Batch: 22VGH7L01

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GASOLINE	ND	U	0.020		mg/L			12/01/22 12:07	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
BROMOFLUOROBENZENE					12/01/22 12:07	1

Lab Sample ID: 22VGH7L01L
Matrix: WATER
Analysis Batch: 22VGH7L01

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
GASOLINE	0.500	0.496		mg/L		99	60 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
BROMOFLUOROBENZENE	116		70 - 130

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

Lab Sample ID: 22DSL002WB
Matrix: WATER
Analysis Batch: 22DSL002W

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DIESEL	ND	U	0.025		mg/L			12/03/22 17:12	1
MOTOR OIL	ND	U	0.050		mg/L			12/03/22 17:12	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
BROMOBENZENE					12/03/22 17:12	1
HEXACOSANE					12/03/22 17:12	1

QC Association Summary

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

Job ID: 380-29656-1

GC/MS Semi VOA

Prep Batch: 25686

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-29656-1	MOANALUA WELLS (331-223-TP202)	Total/NA	Drinking Water	525.2	
MB 380-25686/1-A	Method Blank	Total/NA	Water	525.2	
LCS 380-25686/3-A	Lab Control Sample	Total/NA	Water	525.2	
LCSD 380-25686/4-A	Lab Control Sample Dup	Total/NA	Water	525.2	
MRL 380-25686/2-A	Lab Control Sample	Total/NA	Water	525.2	
380-29506-B-2-A MS	Matrix Spike	Total/NA	Water	525.2	
380-29506-B-3-A DU	Duplicate	Total/NA	Water	525.2	

Analysis Batch: 25943

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-29656-1	MOANALUA WELLS (331-223-TP202)	Total/NA	Drinking Water	525.2	25686
MB 380-25686/1-A	Method Blank	Total/NA	Water	525.2	25686
LCS 380-25686/3-A	Lab Control Sample	Total/NA	Water	525.2	25686
LCSD 380-25686/4-A	Lab Control Sample Dup	Total/NA	Water	525.2	25686
MRL 380-25686/2-A	Lab Control Sample	Total/NA	Water	525.2	25686
380-29506-B-2-A MS	Matrix Spike	Total/NA	Water	525.2	25686
380-29506-B-3-A DU	Duplicate	Total/NA	Water	525.2	25686

Subcontract

Analysis Batch: O-40046

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-29656-1	MOANALUA WELLS (331-223-TP202)	Total/NA	Drinking Water	625 PAH Physis LL (EAL) + TICs	O-40046_P
102126-B1	Method Blank	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-40046_P
102126-BS1	Lab Control Sample	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-40046_P
102126-BS2	Lab Control Sample Dup	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-40046_P

Analysis Batch: 22DSL002W

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-29656-1	MOANALUA WELLS (331-223-TP202)	Total/NA	Drinking Water	8015 LL DRO/MRO	
22DSL002WB	Method Blank	Total/NA	WATER	8015 LL DRO/MRO	
22DSL002WL	Lab Control Sample	Total/NA	WATER	8015 LL DRO/MRO	

Analysis Batch: 22VGH7L01

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-29656-1	MOANALUA WELLS (331-223-TP202)	Total/NA	Drinking Water	8015 Gas (Purgeable) LL (EAL)	
380-29656-2	TB MOANALUA WELLS (331-223-TP202)	Total/NA	Water	8015 Gas (Purgeable) LL (EAL)	
22VGH7L01B	Method Blank	Total/NA	WATER	8015 Gas (Purgeable) LL (EAL)	
22VGH7L01L	Lab Control Sample	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: 380-29656-1

Subcontract

Prep Batch: O-40046_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-29656-1	MOANALUA WELLS (331-223-TP202)	Total/NA	Drinking Water	EPA_625	
102126-B1	Method Blank	Total/NA	BlankMatrix	EPA_625	
102126-BS1	Lab Control Sample	Total/NA	BlankMatrix	EPA_625	
102126-BS2	Lab Control Sample Dup	Total/NA	BlankMatrix	EPA_625	

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

Lab Chronicle

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

Job ID: 380-29656-1

Client Sample ID: MOANALUA WELLS (331-223-TP202)

Lab Sample ID: 380-29656-1

Date Collected: 11/28/22 11:15

Matrix: Drinking Water

Date Received: 11/30/22 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	525.2			25686	OTM3	EA MON	12/05/22 06:56
Total/NA	Analysis	525.2		1	25943	Q8LA	EA MON	12/07/22 17:53
Total/NA	Prep	EPA_625		1	O-40046_P			12/05/22 00:00
Total/NA	Analysis	625 PAH Physis LL (EAL) + TICs		1	O-40046	YC		12/18/22 15:09
Total/NA	Analysis	8015 Gas (Purgeable) LL (EAL)		1	22VGH7L01	SCerva		12/01/22 21:17
Total/NA	Analysis	8015 LL DRO/MRO		1	22DSL002W	SDees		12/03/22 23:01

Client Sample ID: TB MOANALUA WELLS (331-223-TP202)

Lab Sample ID: 380-29656-2

Date Collected: 11/28/22 11:15

Matrix: Water

Date Received: 11/30/22 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015 Gas (Purgeable) LL (EAL)		1	22VGH7L01	SCerva		12/01/22 21:53

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: 380-29656-1

Laboratory: Eurofins Eaton Monrovia

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

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

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

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

Accreditation/Certification Summary

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

Job ID: 380-29656-1

Laboratory: Eurofins Eaton Monrovia (Continued)

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

Authority	Program	Identification Number	Expiration Date
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
525.2	525.2	Drinking Water	Malathion
525.2	525.2	Drinking Water	Molinate
525.2	525.2	Drinking Water	Naphthalene
525.2	525.2	Drinking Water	Parathion
525.2	525.2	Drinking Water	Pendimethalin (Penoxaline)
525.2	525.2	Drinking Water	Phenanthrene
525.2	525.2	Drinking Water	Pyrene
525.2	525.2	Drinking Water	Terbacil
525.2	525.2	Drinking Water	Terbutylazine
525.2	525.2	Drinking Water	Thiobencarb
525.2	525.2	Drinking Water	Total Permethrin (mixed isomers)
525.2	525.2	Drinking Water	trans-Nonachlor
525.2	525.2	Drinking Water	Trifluralin



Method Summary

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

Job ID: 380-29656-1

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: 380-29656-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	PWSID Number
380-29656-1	MOANALUA WELLS (331-223-TP202)	Drinking Water	11/28/22 11:15	11/30/22 10:00	HI0000331
380-29656-2	TB MOANALUA WELLS (331-223-TP202)	Water	11/28/22 11:15	11/30/22 10:00	

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

Date: 12-27-2022
EMAX Batch No.: 22L013

Attn: Jackie Contreras

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

Subject: Laboratory Report
Project: 380-29656

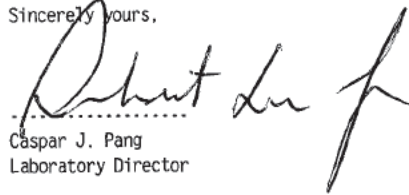
Enclosed is the Laboratory report for samples received on 12/01/22.
The data reported relate only to samples listed below :

Sample ID	Control #	Col Date	Matrix	Analysis
380-29656-1	L013-01	11/28/22	WATER	TPH GASOLINE TPH DIESEL & MOTOR OIL
380-29656-2	L013-02	11/28/22	WATER	TPH GASOLINE

The results are summarized on the following pages.

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

Sincerely yours,



Caspar J. Pang
Laboratory Director

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

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

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



Type of Delivery <input type="checkbox"/> Fedex <input type="checkbox"/> UPS <input type="checkbox"/> GSO <input type="checkbox"/> Others	Airbill / Tracking Number	ECN <u>22L013</u>
<input type="checkbox"/> EMAX Courier <input checked="" type="checkbox"/> Client Delivery		Recipient <u>Jhowin Zamora</u>
		Date <u>12/01/22</u> Time <u>11:25</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 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>3.2</u> °C	<input type="checkbox"/> Cooler 2 _____ °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 _____
			<input checked="" type="checkbox"/> Sufficient
			<input type="checkbox"/> Cooler 4 _____ °C
			<input type="checkbox"/> Cooler 5 _____ °C
			<input type="checkbox"/> Cooler 9 _____ °C
			<input type="checkbox"/> Cooler 10 _____ °C

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

Note: _____

DISCREPANCIES

LabSampleID	LabSampleContainerID	Code	ClientSample Label ID / Information	Corrective Action
<u>2</u>	<u>710</u>	<u>07</u>	<u>two dates listed - 11/8/22 & 11/20/22</u>	<u>R1</u>
<i>[Large handwritten scribble]</i>				

pH holding time requirement for water samples is 15 mins. Water samples for pH analysis are received beyond 15 minutes from sampling time. APB 12/5/22

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><u>D7</u> 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 Jocelyne Collins-Ramirez SRF Jocelyne PM APB

Date 12/01/22 Date 12/15/22

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

380-29656

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

SDG#: 22L013

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CASE NARRATIVE

Client : EUROFINS EATON ANALYTICAL

Project: 380-29656

SDG : 22L013

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

A total of two(2) water samples were received on 12/01/22 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. VGH7L01B - 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. VGH7L01L/VGH7L01C 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 K292-01M/K292-01S. Refer to Matrix QC summary form for details.

Surrogate

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

Sample Analysis

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

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SAMPLE RESULTS

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QC SUMMARIES

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

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=====
Client      : EUROFINS EATON ANALYTICAL   Date Collected: 12/01/22 12:07
Project    : 380-29656                   Date Received: 12/01/22
Batch No.  : 22L013                       Date Extracted: 12/01/22 12:07
Sample ID  : MBLK1W                       Date Analyzed: 12/01/22 12:07
Lab Samp ID: VGH7L01B                     Dilution Factor: 1
Lab File ID: AL01005A                     Matrix: WATER
Ext Btch ID: 22VGH7L01                   % Moisture: NA
Calib. Ref.: AL01004A                     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	0.0360	0.0400	90	60-140

Notes:

Parameter H-C Range

Gasoline C6-C10

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

Sample Amount : 5ml

Final Volume : 5ml

Prepared by : SCerva

Analyzed by : SCerva

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL
PROJECT : 380-29656
BATCH NO. : 22L013
METHOD : 5030B/8015B

MATRIX : WATER		% MOISTURE:NA
DILUTION FACTOR: 1	1	1
SAMPLE ID : MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID : VGH7L01B	VGH7L01L	VGH7L01C
LAB FILE ID : AL01005A	AL01006A	AL01007A
DATE PREPARED : 12/01/22 12:07	12/01/22 12:44	12/01/22 13:21
DATE ANALYZED : 12/01/22 12:07	12/01/22 12:44	12/01/22 13:21
PREP BATCH : 22VGH7L01	22VGH7L01	22VGH7L01
CALIBRATION REF: AL01004A	AL01004A	AL01004A

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	0.496	99	0.500	0.496	99	0	60-130	30

SURROGATE PARAMETER	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	QCLimit (%)
Bromofluorobenzene	0.0400	0.0464	116	0.0400	0.0458	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 : 380-29530
BATCH NO. : 22K292
METHOD : 5030B/8015B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR:	1	1	1
SAMPLE ID	: 380-29530-1	380-29530-1MS	380-29530-1MSD
LAB SAMPLE ID	: K292-01	K292-01M	K292-01S
LAB FILE ID	: AL01008A	AL01009A	AL01010A
DATE PREPARED	: 12/01/22 13:58	12/01/22 14:36	12/01/22 15:13
DATE ANALYZED	: 12/01/22 13:58	12/01/22 14:36	12/01/22 15:13
PREP BATCH	: 22VGH7L01	22VGH7L01	22VGH7L01
CALIBRATION REF:	AL01004A	AL01004A	AL01004A

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	0.478	96	0.500	0.470	94	2	50-130	30

SURROGATE PARAMETER	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	QCLimit (%)
Bromofluorobenzene	0.0400	0.0446	112	0.0400	0.0465	116	60-140

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

LABORATORY REPORT FOR

EUROFINS EATON ANALYTICAL

380-29656

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

SDG#: 22L013



CASE NARRATIVE

Client : EUROFINS EATON ANALYTICAL

Project: 380-29656

SDG : 22L013

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

One(1) water sample was received on 12/01/22 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. DSL002WB - 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. DSL002WL/DSL002WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample

No matrix QC sample was provided on this SDG.

Surrogate

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

Sample Analysis

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

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SAMPLE RESULTS

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QC SUMMARIES

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

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=====
Client      : EUROFINS EATON ANALYTICAL   Date Collected: 12/01/22 13:30
Project    : 380-29656                   Date Received: 12/01/22
Batch No.  : 22L013                       Date Extracted: 12/01/22 13:30
Sample ID  : MBLK1W                       Date Analyzed: 12/03/22 17:12
Lab Samp ID: DSL002WB                     Dilution Factor: 1
Lab File ID: LLO3017A                     Matrix: WATER
Ext Btch ID: 22DSL002W                    % Moisture: NA
Calib. Ref.: LLO3003A                     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	0.436	0.500	87	60-130
Hexacosane	0.138	0.125	110	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 : P0reto Analyzed by : SDeeso

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL
PROJECT : 380-29656
BATCH NO. : 22L013
METHOD : 3520C/8015B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR:	1	1	1
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: DSL002WB	DSL002WL	DSL002WC
LAB FILE ID	: LL03017A	LL03018A	LL03019A
DATE PREPARED	: 12/01/22 13:30	12/01/22 13:30	12/01/22 13:30
DATE ANALYZED	: 12/03/22 17:12	12/03/22 17:31	12/03/22 17:49
PREP BATCH	: 22DSL002W	22DSL002W	22DSL002W
CALIBRATION REF:	LL03003A	LL03003A	LL03003A

ACCESSION:

PARAMETERS	MBResult (mg/L)	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Diesel	ND	2.50	2.68	107	2.50	2.66	106	1	50-130	30

SURROGATE PARAMETERS	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	QCLimit (%)
Bromobenzene	0.500	0.513	103	0.500	0.509	102	60-130
Hexacosane	0.125	0.130	104	0.125	0.139	111	60-130

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

December 28, 2022

Rosalynn Dang
 Eurofins Eaton Analytical
 750 Royal Oaks Drive
 Suite 100
 Monrovia, CA 91016-

Project Name: RED-HILL Project # 38001111 Job # 380-29656-1
 Physis Project ID: 1407003-344

Dear Rosalynn,

Enclosed are the analytical results for the sample submitted to PHYSIS Environmental Laboratories, Inc. (PHYSIS) on 12/1/2022. 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: 1407003-344

RED-HILL Project # 38001111 Job # 380-29656-1

Total Samples: 1

PHYSIS ID	Sample ID	Description	Date	Time	Matrix	Sample Type
102127	MOANALUA WELLS	380-29656-1	11/28/2022	11:15	Samplewater	Grab

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ABBREVIATIONS and ACRONYMS

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

QUALITY ASSURANCE SUMMARY

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

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

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

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

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

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

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

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

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

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

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

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

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

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

PHYSIS QUALIFIER CODES

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

CASE NARRATIVE

QUALIFIER NOTES

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

ND

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

BIANALYTICALS

REPORT

TERRA AURA
ENVIRONMENTAL LABORATORIES, INC.

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Base/Neutral Extractable Compounds

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Sample ID: 102127-R1	MOANALUA WELLS 380-29656-1		Matrix: Samplewater				Sampled: 28-Nov-22 11:15			Received: 01-Dec-22	
Disalicylidenepropanediamine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-40046	05-Dec-22	18-Dec-22



Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Sample ID: 102127-R1	MOANALUA WELLS 380-29656-1	Matrix: Samplewater					Sampled: 28-Nov-22 11:15			Received: 01-Dec-22	
(d10-Acenaphthene)	EPA 625.1	% Recovery	80	1			Total		O-40046	05-Dec-22	18-Dec-22
(d10-Phenanthrene)	EPA 625.1	% Recovery	84	1			Total		O-40046	05-Dec-22	18-Dec-22
(d12-Chrysene)	EPA 625.1	% Recovery	86	1			Total		O-40046	05-Dec-22	18-Dec-22
(d12-Perylene)	EPA 625.1	% Recovery	79	1			Total		O-40046	05-Dec-22	18-Dec-22
(d8-Naphthalene)	EPA 625.1	% Recovery	70	1			Total		O-40046	05-Dec-22	18-Dec-22
1-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40046	05-Dec-22	18-Dec-22
1-Methylphenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40046	05-Dec-22	18-Dec-22
2,3,5-Trimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40046	05-Dec-22	18-Dec-22
2,6-Dimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40046	05-Dec-22	18-Dec-22
2-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40046	05-Dec-22	18-Dec-22
Acenaphthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40046	05-Dec-22	18-Dec-22
Acenaphthylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40046	05-Dec-22	18-Dec-22
Anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40046	05-Dec-22	18-Dec-22
Benz[a]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40046	05-Dec-22	18-Dec-22
Benzo[a]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40046	05-Dec-22	18-Dec-22
Benzo[b]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40046	05-Dec-22	18-Dec-22
Benzo[e]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40046	05-Dec-22	18-Dec-22
Benzo[g,h,i]perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40046	05-Dec-22	18-Dec-22
Benzo[k]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40046	05-Dec-22	18-Dec-22
Biphenyl	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40046	05-Dec-22	18-Dec-22
Chrysene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40046	05-Dec-22	18-Dec-22
D benz[a,h]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40046	05-Dec-22	18-Dec-22
D benzo[a,l]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40046	05-Dec-22	18-Dec-22
D benzothiophene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40046	05-Dec-22	18-Dec-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-40046	05-Dec-22	18-Dec-22
Fluorene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40046	05-Dec-22	18-Dec-22
Indeno[1,2,3-cd]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40046	05-Dec-22	18-Dec-22
Naphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40046	05-Dec-22	18-Dec-22
Perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40046	05-Dec-22	18-Dec-22
Phenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40046	05-Dec-22	18-Dec-22
Pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40046	05-Dec-22	18-Dec-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: 102126-B1		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:		Received:			
		Method: EPA 625.1			Batch ID: O-40046			Prepared: 05-Dec-22		Analyzed: 17-Dec-22			
Disalicylideneprapanediamin	Total	ND	1	0.05	0.1	µg/L							
Sample ID: 102126-BS1		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:		Received:			
		Method: EPA 625.1			Batch ID: O-40046			Prepared: 05-Dec-22		Analyzed: 17-Dec-22			
Disalicylideneprapanediamin	Total	50.3	1	0.05	0.1	µg/L	50	0	101	50 - 150%	PASS		
Sample ID: 102126-BS2		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:		Received:			
		Method: EPA 625.1			Batch ID: O-40046			Prepared: 05-Dec-22		Analyzed: 17-Dec-22			
Disalicylideneprapanediamin	Total	53.8	1	0.05	0.1	µg/L	50	0	108	50 - 150%	PASS	7	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: 102126-B1		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:		Received:		
		Method: EPA 625.1			Batch ID: O-40046			Prepared: 05-Dec-22		Analyzed: 17-Dec-22		
(d10-Acenaphthene)	Total	81	1				% Recovery	100	81	27 - 133%	PASS	
(d10-Phenanthrene)	Total	88	1				% Recovery	100	88	43 - 129%	PASS	
(d12-Chrysene)	Total	88	1				% Recovery	100	88	52 - 144%	PASS	
(d12-Perylene)	Total	82	1				% Recovery	100	82	36 - 161%	PASS	
(d8-Naphthalene)	Total	83	1				% Recovery	100	83	25 - 125%	PASS	
1-Methylnaphthalene	Total	ND	1	0.001	0.005	µg/L						
1-Methylphenanthrene	Total	ND	1	0.001	0.005	µg/L						
2,3,5-Trimethylnaphthalene	Total	ND	1	0.001	0.005	µg/L						
2,6-Dimethylnaphthalene	Total	ND	1	0.001	0.005	µg/L						
2-Methylnaphthalene	Total	ND	1	0.001	0.005	µg/L						
Acenaphthene	Total	ND	1	0.001	0.005	µg/L						
Acenaphthylene	Total	ND	1	0.001	0.005	µg/L						
Anthracene	Total	ND	1	0.001	0.005	µg/L						
Benz[a]anthracene	Total	ND	1	0.001	0.005	µg/L						
Benzo[a]pyrene	Total	ND	1	0.001	0.005	µg/L						
Benzo[b]fluoranthene	Total	ND	1	0.001	0.005	µg/L						
Benzo[e]pyrene	Total	ND	1	0.001	0.005	µg/L						
Benzo[g,h,i]perylene	Total	ND	1	0.001	0.005	µg/L						
Benzo[k]fluoranthene	Total	ND	1	0.001	0.005	µg/L						
Biphenyl	Total	ND	1	0.001	0.005	µg/L						
Chrysene	Total	ND	1	0.001	0.005	µg/L						
Dibenz[a,h]anthracene	Total	ND	1	0.001	0.005	µg/L						
Dibenzo[a,l]pyrene	Total	ND	1	0.001	0.005	µg/L						
Dibenzothiophene	Total	ND	1	0.001	0.005	µg/L						

Polynuclear Aromatic Hydrocarbons

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY		PRECISION		QA 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: 102126-BS1		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:		Received:		
Method: EPA 625.1		Batch ID: O-40046			Prepared: 05-Dec-22		Analyzed: 17-Dec-22					
(d10-Acenaphthene)	Total	74	1			% Recovery	100	0	74	27 - 133%	PASS	
(d10-Phenanthrene)	Total	88	1			% Recovery	100	0	88	43 - 129%	PASS	
(d12-Chrysene)	Total	91	1			% Recovery	100	0	91	52 - 144%	PASS	
(d12-Perylene)	Total	91	1			% Recovery	100	0	91	36 - 161%	PASS	
(d8-Naphthalene)	Total	69	1			% Recovery	100	0	69	25 - 125%	PASS	
1-Methylnaphthalene	Total	0.364	1	0.001	0.005	µg/L	0.5	0	73	31 - 128%	PASS	
1-Methylphenanthrene	Total	0.42	1	0.001	0.005	µg/L	0.5	0	84	66 - 127%	PASS	
2,3,5-Trimethylnaphthalene	Total	0.407	1	0.001	0.005	µg/L	0.5	0	81	55 - 122%	PASS	
2,6-Dimethylnaphthalene	Total	0.377	1	0.001	0.005	µg/L	0.5	0	75	48 - 120%	PASS	
2-Methylnaphthalene	Total	0.36	1	0.001	0.005	µg/L	0.5	0	72	47 - 130%	PASS	
Acenaphthene	Total	0.401	1	0.001	0.005	µg/L	0.5	0	80	53 - 131%	PASS	
Acenaphthylene	Total	0.386	1	0.001	0.005	µg/L	0.5	0	77	43 - 140%	PASS	
Anthracene	Total	0.419	1	0.001	0.005	µg/L	0.5	0	84	58 - 135%	PASS	
Benz[a]anthracene	Total	0.429	1	0.001	0.005	µg/L	0.5	0	86	55 - 145%	PASS	
Benzo[a]pyrene	Total	0.409	1	0.001	0.005	µg/L	0.5	0	82	51 - 143%	PASS	
Benzo[b]fluoranthene	Total	0.42	1	0.001	0.005	µg/L	0.5	0	84	46 - 165%	PASS	
Benzo[e]pyrene	Total	0.421	1	0.001	0.005	µg/L	0.5	0	84	42 - 152%	PASS	
Benzo[g,h,i]perylene	Total	0.423	1	0.001	0.005	µg/L	0.5	0	85	63 - 133%	PASS	
Benzo[k]fluoranthene	Total	0.416	1	0.001	0.005	µg/L	0.5	0	83	56 - 145%	PASS	
Biphenyl	Total	0.381	1	0.001	0.005	µg/L	0.5	0	76	56 - 119%	PASS	
Chrysene	Total	0.421	1	0.001	0.005	µg/L	0.5	0	84	56 - 141%	PASS	
Dibenz[a,h]anthracene	Total	0.433	1	0.001	0.005	µg/L	0.5	0	87	55 - 150%	PASS	
Dibenzo[a,l]pyrene	Total	0.492	1	0.001	0.005	µg/L	0.5	0	98	50 - 150%	PASS	
Dibenzothiophene	Total	0.416	1	0.001	0.005	µg/L	0.5	0	83	46 - 126%	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	0.416	1	0.001	0.005	µg/L	0.5	0	83	60 - 146%	PASS		
Fluorene	Total	0.395	1	0.001	0.005	µg/L	0.5	0	79	58 - 131%	PASS		
Indeno[1,2,3-cd]pyrene	Total	0.419	1	0.001	0.005	µg/L	0.5	0	84	50 - 151%	PASS		
Naphthalene	Total	0.337	1	0.001	0.005	µg/L	0.5	0	67	41 - 126%	PASS		
Perylene	Total	0.413	1	0.001	0.005	µg/L	0.5	0	83	48 - 141%	PASS		
Phenanthrene	Total	0.421	1	0.001	0.005	µg/L	0.5	0	84	67 - 127%	PASS		
Pyrene	Total	0.432	1	0.001	0.005	µg/L	0.5	0	86	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: 102126-BS2		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:			Received:				
		Method: EPA 625.1			Batch ID: O-40046			Prepared: 05-Dec-22			Analyzed: 17-Dec-22				
(d10-Acenaphthene)	Total	88	1				% Recovery	100	0	88	27 - 133%	PASS	17	30	PASS
(d10-Phenanthrene)	Total	87	1				% Recovery	100	0	87	43 - 129%	PASS	1	30	PASS
(d12-Chrysene)	Total	88	1				% Recovery	100	0	88	52 - 144%	PASS	3	30	PASS
(d12-Perylene)	Total	90	1				% Recovery	100	0	90	36 - 161%	PASS	1	30	PASS
(d8-Naphthalene)	Total	79	1				% Recovery	100	0	79	25 - 125%	PASS	14	30	PASS
1-Methylnaphthalene	Total	0.391	1	0.001	0.005	µg/L		0.5	0	78	31 - 128%	PASS	7	30	PASS
1-Methylphenanthrene	Total	0.43	1	0.001	0.005	µg/L		0.5	0	86	66 - 127%	PASS	2	30	PASS
2,3,5-Trimethylnaphthalene	Total	0.428	1	0.001	0.005	µg/L		0.5	0	86	55 - 122%	PASS	6	30	PASS
2,6-Dimethylnaphthalene	Total	0.396	1	0.001	0.005	µg/L		0.5	0	79	48 - 120%	PASS	5	30	PASS
2-Methylnaphthalene	Total	0.397	1	0.001	0.005	µg/L		0.5	0	79	47 - 130%	PASS	9	30	PASS
Acenaphthene	Total	0.416	1	0.001	0.005	µg/L		0.5	0	83	53 - 131%	PASS	4	30	PASS
Acenaphthylene	Total	0.407	1	0.001	0.005	µg/L		0.5	0	81	43 - 140%	PASS	5	30	PASS
Anthracene	Total	0.428	1	0.001	0.005	µg/L		0.5	0	86	58 - 135%	PASS	2	30	PASS
Benz[a]anthracene	Total	0.415	1	0.001	0.005	µg/L		0.5	0	83	55 - 145%	PASS	4	30	PASS
Benzo[a]pyrene	Total	0.414	1	0.001	0.005	µg/L		0.5	0	83	51 - 143%	PASS	1	30	PASS
Benzo[b]fluoranthene	Total	0.424	1	0.001	0.005	µg/L		0.5	0	85	46 - 165%	PASS	1	30	PASS
Benzo[e]pyrene	Total	0.42	1	0.001	0.005	µg/L		0.5	0	84	42 - 152%	PASS	0	30	PASS
Benzo[g,h,i]perylene	Total	0.407	1	0.001	0.005	µg/L		0.5	0	81	63 - 133%	PASS	5	30	PASS
Benzo[k]fluoranthene	Total	0.416	1	0.001	0.005	µg/L		0.5	0	83	56 - 145%	PASS	0	30	PASS
Biphenyl	Total	0.404	1	0.001	0.005	µg/L		0.5	0	81	56 - 119%	PASS	6	30	PASS
Chrysene	Total	0.409	1	0.001	0.005	µg/L		0.5	0	82	56 - 141%	PASS	2	30	PASS
Dibenz[a,h]anthracene	Total	0.406	1	0.001	0.005	µg/L		0.5	0	81	55 - 150%	PASS	7	30	PASS
Dibenzo[a,l]pyrene	Total	0.455	1	0.001	0.005	µg/L		0.5	0	91	50 - 150%	PASS	7	30	PASS
Dibenzothiophene	Total	0.426	1	0.001	0.005	µg/L		0.5	0	85	46 - 126%	PASS	2	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	0.406	1	0.001	0.005	µg/L	0.5	0	81	60 - 146%	PASS	2	30	PASS
Fluorene	Total	0.417	1	0.001	0.005	µg/L	0.5	0	83	58 - 131%	PASS	5	30	PASS
Indeno[1,2,3-cd]pyrene	Total	0.391	1	0.001	0.005	µg/L	0.5	0	78	50 - 151%	PASS	7	30	PASS
Naphthalene	Total	0.389	1	0.001	0.005	µg/L	0.5	0	78	41 - 126%	PASS	15	30	PASS
Perylene	Total	0.408	1	0.001	0.005	µg/L	0.5	0	82	48 - 141%	PASS	1	30	PASS
Phenanthrene	Total	0.427	1	0.001	0.005	µg/L	0.5	0	85	67 - 127%	PASS	1	30	PASS
Pyrene	Total	0.406	1	0.001	0.005	µg/L	0.5	0	81	54 - 156%	PASS	6	30	PASS

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PHYSICS

TENTATIVELY

IDENTIFIED COMPOUNDS

ENVIRONMENTAL LABORATORIES, INC.

Innovative Solutions for Nature

Sample ID: 102127

RT	Area Pct	Concentration (ng/L)	Library/ID	Cas Number	Match Qual
36.3676	4.7069	1111	Anthracene-D10-	1517-22-2	91
10.9616	2.3433	553	Cyclobutanecarboxylic acid, 2-propenyl ester	1000282-60-3	90
10.9616	2.3136	546	Oxalic acid, cyclohexyl propyl ester	1000309-30-3	91
33.0549	0.8162	193	Benzoic acid, 2-ethylhexyl ester	5444-75-7	99
10.5837	0.7749	183	Thiopivalic acid	55561-02-9	81
10.7074	0.6657	157	2-Methylbutanoic anhydride	1468-39-9	84
13.3279	0.6514	154	Succinimide	123-56-8	99
11.3127	0.6031	142	Oxalic acid, cyclohexyl isobutyl ester	1000309-30-4	91

Concentration estimated using the response for Anthracene-d10

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Sample ID: Lab Blank B1_40046

RT	Area Pct	Concentration (ng/L)	Library/ID	Cas Number	Match Qual
36.3666	4.5719	1111	Anthracene-D10	1517-22-2	94
10.9619	2.2168	539	Cyclobutanecarboxylic acid, 2-propenyl ester	1000282-60-3	90
10.5839	0.7914	192	Hexane, 2-nitro-	14255-44-8	81
10.5837	0.7137	173	Ethanone, 1-(3-ethyloxiranyl)-	17257-81-7	80
33.0585	0.6695	163	Benzoic acid, 2-ethylhexyl ester	5444-75-7	98
10.7077	0.6200	151	2-Furanmethanol, tetrahydro-5-methyl-, trans-	54774-28-6	85
11.3135	0.5703	139	Oxalic acid, cyclohexyl isobutyl ester	1000309-30-4	91
10.3164	0.4714	115	Pentanal, 2,2-dimethyl-	14250-88-5	83

Concentration estimated using the response for Anthracene-d10

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PERFORMANCE CHAIN OF CUSTODY

TERRA ENVIRONMENTAL LABORATORIES, INC. AURA

Innovative Solutions for Nature

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

Chain of Custody Record



eurofins
 Environment Testing

Client Information (Sub Contract Lab)
 Client Contact: Shipping/Receiving
 Company: Physis Environmental Laboratories
 Address: 1904 Wright Circle
 City: Anaheim
 State, Zip: CA, 92806
 Phone: [blank]
 Email: [blank]
 Project Name: RED-HILL
 Site: Honolulu BWS Sites

Sampler: [blank]
 Lab PM: Arada, Rachelle
 E-Mail: Rachelle.Arada@eurofins.com
 State of Origin: Hawaii
 Carrier Tracking No(s): [blank]
 COC No.: 380-26693-1
 Page: Page 1 of 1
 Job #: 380-26693-1

Due Date Requested: 12/14/2022
 TAT Requested (days): [blank]
 Accreditations Required (See note): State - Hawaii

Analysis Requested
 Perform MS/MSD (Yes or No)
 SUB (625 PAH Physis LL (EAL) + TICs) / 625 PAH Physis LL (EAL) + TICs

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Seawater, Groundwater, Air)	Field Filtered Sample (Yes or No)	Total Number of containers	Special Instructions/Note:
MOANALUA WELLS (331-223-TP202) (380-29656-1)	11/28/22	11:15	Hawaiian	Water	<input checked="" type="checkbox"/>	2	See Attached Instructions

- Preservation Codes:
- A - HCL
 - B - MeOH
 - C - Zn Acetate
 - D - Nitric Acid
 - E - NaHSO4
 - F - MeOH
 - G - Amchlor
 - H - Ascorbic Acid
 - I - Ice
 - J - DI Water
 - K - EDTA
 - L - EDTA
 - M - Hexane
 - N - None
 - O - AsHClO2
 - P - Na2C4S
 - Q - Na2SC3
 - R - Na2S2O3
 - S - H2SO4
 - T - TSP Dodecahydrate
 - U - Acetone
 - V - MeCA
 - W - pH 4.5
 - X - Trizma
 - Z - other (specify)

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2
 Empty Kit Relinquished by: [blank] Date: [blank]
 Relinquished by: [blank] Date/Time: 12/11/22 14:30 Company: EEA
 Relinquished by: [blank] Date/Time: 12/01/22 14:30 Company: EEA
 Relinquished by: [blank] Date/Time: 12/11/22 14:30 Company: PUGSIS
 Custody Seals Intact: Yes No Custody Seal No.: [blank]
 Coolie Temperature(s) °C and Other Remarks: [blank]

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For Months
 Special Instructions/QCC Requirements: [blank]
 Method of Shipment: [blank]

Received by: [blank] Date/Time: 12-01-22 19:05 Company: EEA
 Received by: [blank] Date/Time: 12/11/22 14:30 Company: PUGSIS

Project Iteration ID: 1407003-344
 Client Name: Eurofins Eaton Analytical
 Project Name: PaloRojo Folder # Sub PO #
 Job # 1000014
 COC Page Number: 2 of 2
 Bottle Label Color: Yellow

Sample Receipt Summary

Receiving Info

1. Initials Received By: AG
2. Date Received: 12/1/22
3. Time Received: 1430
4. Client Name: Eurofins
5. Courier Information: (Please circle)
 - Client
 - UPS
 - Area Fast
 - DRS
 - FedEx
 - GSO/GLS
 - Ontrac
 - PAMS
 - PHYSIS Driver:
 - i. Start Time: _____
 - ii. End Time: _____
 - iii. Total Mileage: _____
 - iv. Number of Pickups: _____
6. Container Information: (Please put the # of containers or circle none)
 - Cooler
 - Styrofoam Cooler
 - Boxes
 - None
 - Carboy(s)
 - Carboy Trash Can(s)
 - Carboy Cap(s)
 - Other _____
7. What type of ice was used: (Please circle any that apply)
 - Wet Ice
 - Blue Ice
 - Dry Ice
 - Water
 - None
8. Randomly Selected Samples Temperature (°C): 8.6 Used I/R Thermometer # 1

Inspection Info

1. Initials Inspected By: RGH

↑ checked
Both Samples

Sample Integrity Upon Receipt:

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


Notes:

Samples arrived Warm temp



Chain of Custody Record

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Client Information				Sampler: EJ	Lab PM: Frank, Debbie L	Carrier Tracking No(s):	COC No: 380-9753-2757.3				
Client Contact: Dr. Ron Fenstemacher				Phone: 1-808-748-5240	E-Mail: Debbie.Frank@et.eurofinsus.com	State of Origin:	Page: Page 3 of 3				
Company: City & County of Honolulu			PWSID:	Analysis Requested							
Address: 630 South Beretania Street Chemistry Lab		Due Date Requested:		Field Filtered Sample (Yes or No) Performing MS/MSD (Yes or No)	SUBCONTRACT - 825 PAH Physis LL (EAL) + TICs	SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)	SUBCONTRACT - 8015 Diesel LL (EAL) and Motor Oil	525.2_PREC - (MOD) 525plus Plus TICs	SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)	Preservation Codes:	
City: Honolulu		TAT Requested (days):								A - HCL	M - Hexane
State, Zip: HI, 96843		Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No								B - NaOH	N - None
Phone: 808-748-5091(Tel)		PO #: C20525101 exp 05312023								C - Zn Acetate	O - AsNaO2
Email: RFENSTEMACHER@hbws.org		WO#:				D - Nitric Acid	P - Na2O4S			Other:	
Project Name: RED-HILL/HBWS Sites Event Desc: RUSH Weekly Red Hill		Project #: 38001111				E - NaHSO4	Q - Na2SO3				
Site: Hawaii		SSOW#:				F - MeOH	R - Na2S2O3				
Sample Identification				Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oli)	Total Number of containers		Special Instructions/Note:	
HALAWA WELLS UNITS1&2(331-206-TP065)							Water				
MOANALUA WELLS (331-223-TP202)				11/28/22	1115	G	Water	X	X	X	X
TB AIEA GULCH WELLS PUMP1 331-201-TP071							Water				
TB AIEA GULCH WELLS PUMP2 331-202-TP07							Water				
TB AIEA WELLS PUMPS1&2(260)331-203-TP400							Water				
TB HALAWA SHAFT (331-241-TP401)							Water				
TB HALAWA WELLS UNITS1&2(331-206-TP065)							Water				
TB MOANALUA WELLS (331-223-TP202)				11/28/22			Water			X	
											
380-29656 COC											
Possible Hazard Identification						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)					
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological						<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months					
Deliverable Requested: I, II, III, IV, Other (specify)						Special Instructions/QC Requirements:					
Empty Kit Relinquished by:				Date:	Time:	Method/Volume:		6200 7706 2476 6220			
Relinquished by:		Date/Time:	Company:	Received by:		Date/Time:		Company:			
		NOV 29, 2022	HBWS	Dara B.		11-30-22 10:00		EEA			
Relinquished by:		Date/Time:	Company:	Received by:		Date/Time:		Company:			
Relinquished by:		Date/Time:	Company:	Received by:		Date/Time:		Company:			
Custody Seals Intact:		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:							
<input type="checkbox"/> Yes <input type="checkbox"/> No				3.0 (750A) - 0.1 = 2.9 GEL							

DB

Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-29656-1

Login Number: 29656
List Number: 1
Creator: Banh-Thai, Dara

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	

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