

ANALYTICAL REPORT

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Laboratory Job ID: 380-21454-1
Client Project/Site: RED-HILL

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

Attn: Mr. Erwin Kawata



Authorized for release by:
10/18/2022 8:10:42 PM

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

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



Rachelle Arada
Manager of Project Management
10/18/2022 8:10:42 PM





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Definitions/Glossary

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

Job ID: 380-21454-1

Qualifiers

GC/MS Semi VOA

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

Case Narrative

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

Job ID: 380-21454-1

Job ID: 380-21454-1

Laboratory: Eurofins Eaton Monrovia

Narrative

Job Narrative 380-21454-1

Comments

No additional comments.

Receipt

The samples were received on 9/20/2022 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 3.0° C.

GC/MS Semi VOA

Method 525.2: The continuing calibration verification (CCV) associated with batch 380-18233 recovered above the upper control limit for Methoxychlor and Total Permethrin (mixed isomers). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: HALAWA WELLS P1 (331-023-WL065) (380-21454-1).

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

Subcontract non-Sister

See attached subcontract report.

Organic Prep

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

Subcontract Work

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

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

Detection Summary

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

Job ID: 380-21454-1

Client Sample ID: HALAWA WELLS P1 (331-023-WL065)

Lab Sample ID: 380-21454-1

No Detections.

Client Sample ID: TRAVEL BLANK

Lab Sample ID: 380-21454-2

No Detections.

- 1
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This Detection Summary does not include radiochemical test results.

Eurofins Eaton Monrovia

Client Sample Results

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

Job ID: 380-21454-1

Client Sample ID: HALAWA WELLS P1 (331-023-WL065)

Lab Sample ID: 380-21454-1

Date Collected: 09/19/22 10:10

Matrix: Drinking Water

Date Received: 09/20/22 10:00

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND	^3+	0.099	ug/L		09/21/22 06:31	09/22/22 17:19	1
2,4'-DDE	ND		0.099	ug/L		09/21/22 06:31	09/22/22 17:19	1
2,4'-DDT	ND	*+	0.099	ug/L		09/21/22 06:31	09/22/22 17:19	1
2,4-Dinitrotoluene	ND		0.099	ug/L		09/21/22 06:31	09/22/22 17:19	1
2,6-Dinitrotoluene	ND		0.099	ug/L		09/21/22 06:31	09/22/22 17:19	1
4,4'-DDD	ND	*+	0.099	ug/L		09/21/22 06:31	09/22/22 17:19	1
4,4'-DDE	ND		0.099	ug/L		09/21/22 06:31	09/22/22 17:19	1
4,4'-DDT	ND	*+	0.099	ug/L		09/21/22 06:31	09/22/22 17:19	1
Acenaphthene	ND		0.099	ug/L		09/21/22 06:31	09/22/22 17:19	1
Acenaphthylene	ND		0.099	ug/L		09/21/22 06:31	09/22/22 17:19	1
Acetochlor	ND		0.099	ug/L		09/21/22 06:31	09/22/22 17:19	1
Alachlor	ND		0.049	ug/L		09/21/22 06:31	09/22/22 17:19	1
alpha-BHC	ND		0.099	ug/L		09/21/22 06:31	09/22/22 17:19	1
alpha-Chlordane	ND		0.049	ug/L		09/21/22 06:31	09/22/22 17:19	1
Anthracene	ND		0.020	ug/L		09/21/22 06:31	09/22/22 17:19	1
Atrazine	ND		0.049	ug/L		09/21/22 06:31	09/22/22 17:19	1
Benz(a)anthracene	ND		0.049	ug/L		09/21/22 06:31	09/22/22 17:19	1
Benzo[a]pyrene	ND		0.020	ug/L		09/21/22 06:31	09/22/22 17:19	1
Benzo[b]fluoranthene	ND		0.020	ug/L		09/21/22 06:31	09/22/22 17:19	1
Benzo[g,h,i]perylene	ND		0.049	ug/L		09/21/22 06:31	09/22/22 17:19	1
Benzo[k]fluoranthene	ND		0.020	ug/L		09/21/22 06:31	09/22/22 17:19	1
beta-BHC	ND		0.099	ug/L		09/21/22 06:31	09/22/22 17:19	1
Bromacil	ND	*+	0.099	ug/L		09/21/22 06:31	09/22/22 17:19	1
Butachlor	ND		0.049	ug/L		09/21/22 06:31	09/22/22 17:19	1
Butylbenzylphthalate	ND		0.49	ug/L		09/21/22 06:31	09/22/22 17:19	1
Caffeine	ND		0.049	ug/L		09/21/22 06:31	09/22/22 17:19	1
Chlorobenzilate	ND		0.099	ug/L		09/21/22 06:31	09/22/22 17:19	1
Chloroneb	ND		0.099	ug/L		09/21/22 06:31	09/22/22 17:19	1
Chlorothalonil (Draconil, Bravo)	ND		0.099	ug/L		09/21/22 06:31	09/22/22 17:19	1
Chlorpyrifos	ND		0.049	ug/L		09/21/22 06:31	09/22/22 17:19	1
Chrysene	ND		0.020	ug/L		09/21/22 06:31	09/22/22 17:19	1
delta-BHC	ND		0.099	ug/L		09/21/22 06:31	09/22/22 17:19	1
Di(2-ethylhexyl)adipate	ND	*+	0.59	ug/L		09/21/22 06:31	09/22/22 17:19	1
Bis(2-ethylhexyl) phthalate	ND		0.59	ug/L		09/21/22 06:31	09/22/22 17:19	1
Diazinon (Qualitative)	ND		0.099	ug/L		09/21/22 06:31	09/22/22 17:19	1
Dibenz(a,h)anthracene	ND		0.049	ug/L		09/21/22 06:31	09/22/22 17:19	1
Diclorvos (DDVP)	ND	^3+	0.049	ug/L		09/21/22 06:31	09/22/22 17:19	1
Dieldrin	ND		0.20	ug/L		09/21/22 06:31	09/22/22 17:19	1
Diethylphthalate	ND		0.49	ug/L		09/21/22 06:31	09/22/22 17:19	1
Dimethoate	ND	*+	0.099	ug/L		09/21/22 06:31	09/22/22 17:19	1
Dimethylphthalate	ND		0.49	ug/L		09/21/22 06:31	09/22/22 17:19	1
Di-n-butyl phthalate	ND		0.99	ug/L		09/21/22 06:31	09/22/22 17:19	1
Di-n-octyl phthalate	ND		0.099	ug/L		09/21/22 06:31	09/22/22 17:19	1
Endosulfan I (Alpha)	ND		0.099	ug/L		09/21/22 06:31	09/22/22 17:19	1
Endosulfan II (Beta)	ND		0.099	ug/L		09/21/22 06:31	09/22/22 17:19	1
Endosulfan sulfate	ND		0.099	ug/L		09/21/22 06:31	09/22/22 17:19	1
Endrin	ND	*+ ^3+	0.099	ug/L		09/21/22 06:31	09/22/22 17:19	1
Endrin aldehyde	ND		0.099	ug/L		09/21/22 06:31	09/22/22 17:19	1
EPTC	ND		0.099	ug/L		09/21/22 06:31	09/22/22 17:19	1

Client Sample Results

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

Job ID: 380-21454-1

Client Sample ID: HALAWA WELLS P1 (331-023-WL065)

Lab Sample ID: 380-21454-1

Date Collected: 09/19/22 10:10

Matrix: Drinking Water

Date Received: 09/20/22 10:00

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoranthene	ND		0.099	ug/L		09/21/22 06:31	09/22/22 17:19	1
Fluorene	ND		0.049	ug/L		09/21/22 06:31	09/22/22 17:19	1
gamma-Chlordane	ND		0.049	ug/L		09/21/22 06:31	09/22/22 17:19	1
Heptachlor	ND		0.039	ug/L		09/21/22 06:31	09/22/22 17:19	1
Heptachlor epoxide (isomer B)	ND		0.049	ug/L		09/21/22 06:31	09/22/22 17:19	1
Hexachlorobenzene	ND		0.049	ug/L		09/21/22 06:31	09/22/22 17:19	1
Hexachlorocyclopentadiene	ND		0.049	ug/L		09/21/22 06:31	09/22/22 17:19	1
Indeno[1,2,3-cd]pyrene	ND		0.049	ug/L		09/21/22 06:31	09/22/22 17:19	1
Isophorone	ND		0.49	ug/L		09/21/22 06:31	09/22/22 17:19	1
Lindane	ND		0.039	ug/L		09/21/22 06:31	09/22/22 17:19	1
Malathion	ND		0.099	ug/L		09/21/22 06:31	09/22/22 17:19	1
Methoxychlor	ND	*+	0.099	ug/L		09/21/22 06:31	09/22/22 17:19	1
Metolachlor	ND		0.049	ug/L		09/21/22 06:31	09/22/22 17:19	1
Metribuzin	ND		0.049	ug/L		09/21/22 06:31	09/22/22 17:19	1
Molinate	ND		0.099	ug/L		09/21/22 06:31	09/22/22 17:19	1
Naphthalene	ND		0.30	ug/L		09/21/22 06:31	09/22/22 17:19	1
Parathion	ND		0.099	ug/L		09/21/22 06:31	09/22/22 17:19	1
Pendimethalin (Penoxaline)	ND		0.099	ug/L		09/21/22 06:31	09/22/22 17:19	1
Total Permethrin (mixed isomers)	ND	*+	0.20	ug/L		09/21/22 06:31	09/22/22 17:19	1
Phenanthrene	ND		0.039	ug/L		09/21/22 06:31	09/22/22 17:19	1
Propachlor	ND		0.049	ug/L		09/21/22 06:31	09/22/22 17:19	1
Pyrene	ND		0.049	ug/L		09/21/22 06:31	09/22/22 17:19	1
Simazine	ND		0.049	ug/L		09/21/22 06:31	09/22/22 17:19	1
Terbacil	ND		0.099	ug/L		09/21/22 06:31	09/22/22 17:19	1
Terbuthylazine	ND		0.099	ug/L		09/21/22 06:31	09/22/22 17:19	1
Thiobencarb	ND		0.20	ug/L		09/21/22 06:31	09/22/22 17:19	1
trans-Nonachlor	ND		0.049	ug/L		09/21/22 06:31	09/22/22 17:19	1
Trifluralin	ND		0.099	ug/L		09/21/22 06:31	09/22/22 17:19	1
1-Methylnaphthalene	ND		0.099	ug/L		09/21/22 06:31	09/22/22 17:19	1
2-Methylnaphthalene	ND		0.099	ug/L		09/21/22 06:31	09/22/22 17:19	1

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Unknown	0.70	T J	ug/L		2.26		09/21/22 06:31	09/22/22 17:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	102		70 - 130	09/21/22 06:31	09/22/22 17:19	1
Triphenylphosphate	107		70 - 130	09/21/22 06:31	09/22/22 17:19	1
Perylene-d12	100		70 - 130	09/21/22 06:31	09/22/22 17:19	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		09/22/22 00:00	09/27/22 19:08	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		09/22/22 00:00	09/27/22 19:08	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		09/22/22 00:00	09/27/22 19:08	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		09/22/22 00:00	09/27/22 19:08	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		09/22/22 00:00	09/27/22 19:08	1
Acenaphthene	ND		0.005	0.001	µg/L		09/22/22 00:00	09/27/22 19:08	1
Acenaphthylene	ND		0.005	0.001	µg/L		09/22/22 00:00	09/27/22 19:08	1
Anthracene	ND		0.005	0.001	µg/L		09/22/22 00:00	09/27/22 19:08	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		09/22/22 00:00	09/27/22 19:08	1

Eurofins Eaton Monrovia

Client Sample Results

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

Job ID: 380-21454-1

Client Sample ID: HALAWA WELLS P1 (331-023-WL065)

Lab Sample ID: 380-21454-1

Date Collected: 09/19/22 10:10

Matrix: Drinking Water

Date Received: 09/20/22 10:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[a]pyrene	ND		0.005	0.001	µg/L		09/22/22 00:00	09/27/22 19:08	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		09/22/22 00:00	09/27/22 19:08	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		09/22/22 00:00	09/27/22 19:08	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		09/22/22 00:00	09/27/22 19:08	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		09/22/22 00:00	09/27/22 19:08	1
Biphenyl	ND		0.005	0.001	µg/L		09/22/22 00:00	09/27/22 19:08	1
Chrysene	ND		0.005	0.001	µg/L		09/22/22 00:00	09/27/22 19:08	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		09/22/22 00:00	09/27/22 19:08	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		09/22/22 00:00	09/27/22 19:08	1
Dibenzothiophene	ND		0.005	0.001	µg/L		09/22/22 00:00	09/27/22 19:08	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		09/22/22 00:00	09/27/22 19:08	1
Fluoranthene	ND		0.005	0.001	µg/L		09/22/22 00:00	09/27/22 19:08	1
Fluorene	ND		0.005	0.001	µg/L		09/22/22 00:00	09/27/22 19:08	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		09/22/22 00:00	09/27/22 19:08	1
Naphthalene	ND		0.005	0.001	µg/L		09/22/22 00:00	09/27/22 19:08	1
Perylene	ND		0.005	0.001	µg/L		09/22/22 00:00	09/27/22 19:08	1
Phenanthrene	ND		0.005	0.001	µg/L		09/22/22 00:00	09/27/22 19:08	1
Pyrene	ND		0.005	0.001	µg/L		09/22/22 00:00	09/27/22 19:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	69		45 - 118	09/22/22 00:00	09/27/22 19:08	1
(d10-Phenanthrene)	92		56 - 123	09/22/22 00:00	09/27/22 19:08	1
(d12-Chrysene)	93		36 - 142	09/22/22 00:00	09/27/22 19:08	1
(d12-Perylene)	77		36 - 161	09/22/22 00:00	09/27/22 19:08	1
(d8-Naphthalene)	73		20 - 112	09/22/22 00:00	09/27/22 19:08	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GASOLINE	ND	U	0.02		mg/L			09/23/22 01:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
BROMOFLUOROBENZENE	86		60 - 140		09/23/22 01:26	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DIESEL	ND	U	0.027		mg/L			10/03/22 14:21	1
MOTOR OIL	ND	U	0.054		mg/L			10/03/22 14:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
BROMOBENZENE	67		60 - 130		10/03/22 14:21	1
HEXACOSANE	81		60 - 130		10/03/22 14:21	1

Client Sample ID: TRAVEL BLANK

Lab Sample ID: 380-21454-2

Date Collected: 09/19/22 10:10

Matrix: Water

Date Received: 09/20/22 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	0.02		mg/L			09/23/22 02:04	1

Client Sample Results

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

Job ID: 380-21454-1

Client Sample ID: TRAVEL BLANK

Lab Sample ID: 380-21454-2

Date Collected: 09/19/22 10:10

Matrix: Water

Date Received: 09/20/22 10:00

<u>Surrogate</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
BROMOFLUOROBENZENE	87		60 - 140		09/23/22 02:04	1

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Action Limit Summary

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

Job ID: 380-21454-1

Client Sample ID: HALAWA WELLS P1 (331-023-WL065)

Lab Sample ID: 380-21454-1

Compliance Check

The results obtained from the analytical testing of this data set were checked against compliance limits received from the client. Any results at or above the compliance limits have been highlighted for your convenience.

Analyte	Result	Qualifier	Unit	EPAMCL	RL	Method	Prep Type
				Limit			
Alachlor	ND		ug/L	2	0.049	525.2	Total/NA
Atrazine	ND		ug/L	3	0.049	525.2	Total/NA
Benzo[a]pyrene	ND		ug/L	0.2	0.020	525.2	Total/NA
Di(2-ethylhexyl)adipate	ND	*+	ug/L	400	0.59	525.2	Total/NA
Bis(2-ethylhexyl) phthalate	ND		ug/L	6	0.59	525.2	Total/NA
Endrin	ND	*+ ^3+	ug/L	2	0.099	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	0.099	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: 380-21454-1

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

Matrix: Drinking Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		2NMX (70-130)	TPP (70-130)	PRY (70-130)
380-21454-1	HALAWA WELLS P1 (331-023-V)	102	107	100

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

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		2NMX (70-130)	TPP (70-130)	PRY (70-130)
380-21450-C-1-A MS	Matrix Spike	101	109	95
380-21464-J-1-A DU	Duplicate	104	113	98
LCS 380-18009/3-A	Lab Control Sample	102	109	96
LCS 380-18009/4-A	Lab Control Sample Dup	100	113	100
MB 380-18009/1-A	Method Blank	104	110	96
MRL 380-18009/2-A	Lab Control Sample	101	112	96

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

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

Matrix: Drinking Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)				
		ANT (45-118)	CRY (36-142)	NPT (20-112)	PHN (56-123)	PRY (36-161)
380-21454-1	HALAWA WELLS P1 (331-023-V)	69	93	73	92	77

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

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

Matrix: water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)				
		ANT (65-113)	CRY (60-139)	NPT (44-119)	PHN (80-111)	PRY (36-161)
100205-B1	Method Blank	87	102	75	97	88
100205-BS1	Lab Control Sample	71	103	87	101	101
100205-BS2	Lab Control Sample Dup	89	104	80	101	103

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

Eurofins Eaton Monrovia

Surrogate Summary

Client: City & County of Honolulu

Job ID: 380-21454-1

Project/Site: RED-HILL

NPT = (d8-Naphthalene)

PHN = (d10-Phenanthrene)

PRY = (d12-Perylene)

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

Matrix: Drinking Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB (60-140)
380-21454-1	HALAWA WELLS P1 (331-023-V	86

Surrogate Legend

BFB = BROMOFLUOROBENZENE

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

Matrix: WATER

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB
22VG39116B	Method Blank	

Surrogate Legend

BFB = BROMOFLUOROBENZENE

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

Matrix: WATER

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB (70-130)
22VG39116C	LCD	105
22VG39116L	Lab Control Sample	107

Surrogate Legend

BFB = BROMOFLUOROBENZENE

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

Matrix: Drinking Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BB (60-130)	XACOSAI (60-130)
380-21454-1	HALAWA WELLS P1 (331-023-V	67	81

Surrogate Legend

BB = BROMOBENZENE

HEXACOSANE = HEXACOSANE

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB (60-140)
380-21454-2	TRAVEL BLANK	87

Surrogate Legend

BFB = BROMOFLUOROBENZENE

Surrogate Summary

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

Job ID: 380-21454-1

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

Matrix: WATER

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

BB XACOSAI

Lab Sample ID	Client Sample ID
22DSJ003WB	Method Blank

Surrogate Legend

BB = BROMOBENZENE
 HEXACOSANE = HEXACOSANE

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

Matrix: WATER

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

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

Lab Sample ID	Client Sample ID	BB	XACOSAI
		(60-130)	(60-130)
22DSJ003WC	LCD	79	75
22DSJ003WL	Lab Control Sample	86	86

Surrogate Legend

BB = BROMOBENZENE
 HEXACOSANE = HEXACOSANE



QC Sample Results

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

Job ID: 380-21454-1

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

Lab Sample ID: MB 380-18009/1-A
Matrix: Water
Analysis Batch: 18233

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18009

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		0.10	ug/L		09/21/22 06:31	09/22/22 16:38	1
2,4'-DDE	ND		0.10	ug/L		09/21/22 06:31	09/22/22 16:38	1
2,4'-DDT	ND		0.10	ug/L		09/21/22 06:31	09/22/22 16:38	1
2,4-Dinitrotoluene	ND		0.10	ug/L		09/21/22 06:31	09/22/22 16:38	1
2,6-Dinitrotoluene	ND		0.10	ug/L		09/21/22 06:31	09/22/22 16:38	1
4,4'-DDD	ND		0.10	ug/L		09/21/22 06:31	09/22/22 16:38	1
4,4'-DDE	ND		0.10	ug/L		09/21/22 06:31	09/22/22 16:38	1
4,4'-DDT	ND		0.10	ug/L		09/21/22 06:31	09/22/22 16:38	1
Acenaphthene	ND		0.10	ug/L		09/21/22 06:31	09/22/22 16:38	1
Acenaphthylene	ND		0.10	ug/L		09/21/22 06:31	09/22/22 16:38	1
Acetochlor	ND		0.10	ug/L		09/21/22 06:31	09/22/22 16:38	1
Alachlor	ND		0.050	ug/L		09/21/22 06:31	09/22/22 16:38	1
alpha-BHC	ND		0.10	ug/L		09/21/22 06:31	09/22/22 16:38	1
alpha-Chlordane	ND		0.050	ug/L		09/21/22 06:31	09/22/22 16:38	1
Anthracene	ND		0.020	ug/L		09/21/22 06:31	09/22/22 16:38	1
Atrazine	ND		0.050	ug/L		09/21/22 06:31	09/22/22 16:38	1
Benz(a)anthracene	ND		0.050	ug/L		09/21/22 06:31	09/22/22 16:38	1
Benzo[a]pyrene	ND		0.020	ug/L		09/21/22 06:31	09/22/22 16:38	1
Benzo[b]fluoranthene	ND		0.020	ug/L		09/21/22 06:31	09/22/22 16:38	1
Benzo[g,h,i]perylene	ND		0.050	ug/L		09/21/22 06:31	09/22/22 16:38	1
Benzo[k]fluoranthene	ND		0.020	ug/L		09/21/22 06:31	09/22/22 16:38	1
beta-BHC	ND		0.10	ug/L		09/21/22 06:31	09/22/22 16:38	1
Bromacil	ND		0.10	ug/L		09/21/22 06:31	09/22/22 16:38	1
Butachlor	ND		0.050	ug/L		09/21/22 06:31	09/22/22 16:38	1
Butylbenzylphthalate	ND		0.50	ug/L		09/21/22 06:31	09/22/22 16:38	1
Caffeine	ND		0.050	ug/L		09/21/22 06:31	09/22/22 16:38	1
Chlorobenzilate	ND		0.10	ug/L		09/21/22 06:31	09/22/22 16:38	1
Chloroneb	ND		0.10	ug/L		09/21/22 06:31	09/22/22 16:38	1
Chlorothalonil (Draconil, Bravo)	ND		0.10	ug/L		09/21/22 06:31	09/22/22 16:38	1
Chlorpyrifos	ND		0.050	ug/L		09/21/22 06:31	09/22/22 16:38	1
Chrysene	ND		0.020	ug/L		09/21/22 06:31	09/22/22 16:38	1
delta-BHC	ND		0.10	ug/L		09/21/22 06:31	09/22/22 16:38	1
Di(2-ethylhexyl)adipate	ND		0.60	ug/L		09/21/22 06:31	09/22/22 16:38	1
Bis(2-ethylhexyl) phthalate	ND		0.60	ug/L		09/21/22 06:31	09/22/22 16:38	1
Diazinon (Qualitative)	ND		0.10	ug/L		09/21/22 06:31	09/22/22 16:38	1
Dibenz(a,h)anthracene	ND		0.050	ug/L		09/21/22 06:31	09/22/22 16:38	1
Diclorvos (DDVP)	ND		0.050	ug/L		09/21/22 06:31	09/22/22 16:38	1
Dieldrin	ND		0.20	ug/L		09/21/22 06:31	09/22/22 16:38	1
Diethylphthalate	ND		0.50	ug/L		09/21/22 06:31	09/22/22 16:38	1
Dimethoate	ND		0.10	ug/L		09/21/22 06:31	09/22/22 16:38	1
Dimethylphthalate	ND		0.50	ug/L		09/21/22 06:31	09/22/22 16:38	1
Di-n-butyl phthalate	ND		1.0	ug/L		09/21/22 06:31	09/22/22 16:38	1
Di-n-octyl phthalate	ND		0.10	ug/L		09/21/22 06:31	09/22/22 16:38	1
Endosulfan I (Alpha)	ND		0.10	ug/L		09/21/22 06:31	09/22/22 16:38	1
Endosulfan II (Beta)	ND		0.10	ug/L		09/21/22 06:31	09/22/22 16:38	1
Endosulfan sulfate	ND		0.10	ug/L		09/21/22 06:31	09/22/22 16:38	1
Endrin	ND		0.10	ug/L		09/21/22 06:31	09/22/22 16:38	1
Endrin aldehyde	ND		0.10	ug/L		09/21/22 06:31	09/22/22 16:38	1

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QC Sample Results

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

Job ID: 380-21454-1

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

Lab Sample ID: MB 380-18009/1-A
Matrix: Water
Analysis Batch: 18233

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 18009

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
EPTC	ND		0.10	ug/L		09/21/22 06:31	09/22/22 16:38	1
Fluoranthene	ND		0.10	ug/L		09/21/22 06:31	09/22/22 16:38	1
Fluorene	ND		0.050	ug/L		09/21/22 06:31	09/22/22 16:38	1
gamma-Chlordane	ND		0.050	ug/L		09/21/22 06:31	09/22/22 16:38	1
Heptachlor	ND		0.040	ug/L		09/21/22 06:31	09/22/22 16:38	1
Heptachlor epoxide (isomer B)	ND		0.050	ug/L		09/21/22 06:31	09/22/22 16:38	1
Hexachlorobenzene	ND		0.050	ug/L		09/21/22 06:31	09/22/22 16:38	1
Hexachlorocyclopentadiene	ND		0.050	ug/L		09/21/22 06:31	09/22/22 16:38	1
Indeno[1,2,3-cd]pyrene	ND		0.050	ug/L		09/21/22 06:31	09/22/22 16:38	1
Isophorone	ND		0.50	ug/L		09/21/22 06:31	09/22/22 16:38	1
Lindane	ND		0.040	ug/L		09/21/22 06:31	09/22/22 16:38	1
Malathion	ND		0.10	ug/L		09/21/22 06:31	09/22/22 16:38	1
Methoxychlor	ND		0.10	ug/L		09/21/22 06:31	09/22/22 16:38	1
Metolachlor	ND		0.050	ug/L		09/21/22 06:31	09/22/22 16:38	1
Metribuzin	ND		0.050	ug/L		09/21/22 06:31	09/22/22 16:38	1
Molinate	ND		0.10	ug/L		09/21/22 06:31	09/22/22 16:38	1
Naphthalene	ND		0.30	ug/L		09/21/22 06:31	09/22/22 16:38	1
Parathion	ND		0.10	ug/L		09/21/22 06:31	09/22/22 16:38	1
Pendimethalin (Penoxaline)	ND		0.10	ug/L		09/21/22 06:31	09/22/22 16:38	1
Total Permethrin (mixed isomers)	ND		0.20	ug/L		09/21/22 06:31	09/22/22 16:38	1
Phenanthrene	ND		0.040	ug/L		09/21/22 06:31	09/22/22 16:38	1
Propachlor	ND		0.050	ug/L		09/21/22 06:31	09/22/22 16:38	1
Pyrene	ND		0.050	ug/L		09/21/22 06:31	09/22/22 16:38	1
Simazine	ND		0.050	ug/L		09/21/22 06:31	09/22/22 16:38	1
Terbacil	ND		0.10	ug/L		09/21/22 06:31	09/22/22 16:38	1
Terbutylazine	ND		0.10	ug/L		09/21/22 06:31	09/22/22 16:38	1
Thiobencarb	ND		0.20	ug/L		09/21/22 06:31	09/22/22 16:38	1
trans-Nonachlor	ND		0.050	ug/L		09/21/22 06:31	09/22/22 16:38	1
Trifluralin	ND		0.10	ug/L		09/21/22 06:31	09/22/22 16:38	1
1-Methylnaphthalene	ND		0.10	ug/L		09/21/22 06:31	09/22/22 16:38	1
2-Methylnaphthalene	ND		0.10	ug/L		09/21/22 06:31	09/22/22 16:38	1

<i>Tentatively Identified Compound</i>	MB Est. Result	MB Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
<i>Hexazinone</i>	0.119	B	ug/L		7.94	51235-04-2	09/21/22 06:31	09/22/22 16:38	1
<i>Tentatively Identified Compound</i>	None		ug/L				09/21/22 06:31	09/22/22 16:38	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>2-Nitro-m-xylene</i>	104		70 - 130	09/21/22 06:31	09/22/22 16:38	1
<i>Triphenylphosphate</i>	110		70 - 130	09/21/22 06:31	09/22/22 16:38	1
<i>Perylene-d12</i>	96		70 - 130	09/21/22 06:31	09/22/22 16:38	1

Lab Sample ID: LCS 380-18009/3-A
Matrix: Water
Analysis Batch: 18233

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18009

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4'-DDD	1.99	2.01		ug/L		101	70 - 130
2,4'-DDE	1.99	2.10		ug/L		106	70 - 130

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QC Sample Results

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

Job ID: 380-21454-1

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

Lab Sample ID: LCS 380-18009/3-A
Matrix: Water
Analysis Batch: 18233

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18009

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4'-DDT	1.99	2.43		ug/L		122	70 - 130
2,4-Dinitrotoluene	1.99	2.21		ug/L		111	70 - 130
2,6-Dinitrotoluene	1.99	2.37		ug/L		119	70 - 130
4,4'-DDD	1.99	2.46		ug/L		124	70 - 130
4,4'-DDE	1.99	2.16		ug/L		108	70 - 130
4,4'-DDT	1.99	2.40		ug/L		120	70 - 130
Acenaphthene	1.99	1.96		ug/L		99	70 - 130
Acenaphthylene	1.99	1.96		ug/L		98	70 - 130
Acetochlor	1.99	2.18		ug/L		110	70 - 130
Alachlor	1.99	2.17		ug/L		109	70 - 130
alpha-BHC	1.99	2.19		ug/L		110	70 - 130
alpha-Chlordane	1.99	2.13		ug/L		107	70 - 130
Anthracene	1.99	2.04		ug/L		103	70 - 130
Atrazine	1.99	2.21		ug/L		111	70 - 130
Benz(a)anthracene	1.99	2.32		ug/L		117	70 - 130
Benzo[a]pyrene	1.99	2.20		ug/L		110	70 - 130
Benzo[b]fluoranthene	1.99	2.25		ug/L		113	70 - 130
Benzo[g,h,i]perylene	1.99	2.35		ug/L		118	70 - 130
Benzo[k]fluoranthene	1.99	2.33		ug/L		117	70 - 130
beta-BHC	1.99	2.22		ug/L		112	70 - 130
Bromacil	1.99	2.65	*+	ug/L		133	70 - 130
Butachlor	1.99	2.34		ug/L		118	70 - 130
Butylbenzylphthalate	1.99	2.38		ug/L		119	70 - 130
Caffeine	1.99	1.95		ug/L		98	45 - 137
Chlorobenzilate	1.99	2.41		ug/L		121	70 - 130
Chloroneb	1.99	2.15		ug/L		108	70 - 130
Chlorothalonil (Draconil, Bravo)	1.99	2.38		ug/L		119	70 - 130
Chlorpyrifos	1.99	2.27		ug/L		114	70 - 130
Chrysene	1.99	2.21		ug/L		111	70 - 130
delta-BHC	1.99	2.22		ug/L		111	70 - 130
Di(2-ethylhexyl)adipate	1.99	2.39		ug/L		120	70 - 130
Bis(2-ethylhexyl) phthalate	1.99	2.11		ug/L		106	70 - 130
Diazinon (Qualitative)	1.99	2.03		ug/L		102	15 - 132
Dibenz(a,h)anthracene	1.99	2.30		ug/L		116	70 - 130
Diclorvos (DDVP)	1.99	2.23		ug/L		112	70 - 130
Dieldrin	1.99	2.14		ug/L		108	70 - 130
Diethylphthalate	1.99	2.05		ug/L		103	70 - 130
Dimethoate	1.99	2.04	*+	ug/L		103	35 - 100
Dimethylphthalate	1.99	2.20		ug/L		110	70 - 130
Di-n-butyl phthalate	3.98	4.17		ug/L		105	70 - 130
Di-n-octyl phthalate	1.99	1.97		ug/L		99	70 - 130
Endosulfan I (Alpha)	1.99	2.12		ug/L		107	70 - 130
Endosulfan II (Beta)	1.99	2.29		ug/L		115	70 - 130
Endosulfan sulfate	1.99	2.41		ug/L		121	70 - 130
Endrin	1.99	2.60	*+	ug/L		131	70 - 130
Endrin aldehyde	1.99	2.09		ug/L		105	70 - 130
EPTC	1.99	2.07		ug/L		104	70 - 130
Fluoranthene	1.99	2.28		ug/L		115	70 - 130
Fluorene	1.99	2.10		ug/L		106	70 - 130

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QC Sample Results

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

Job ID: 380-21454-1

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

Lab Sample ID: LCS 380-18009/3-A
Matrix: Water
Analysis Batch: 18233

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18009

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
gamma-Chlordane	1.99	2.13		ug/L		107	70 - 130
Heptachlor	1.99	2.05		ug/L		103	70 - 130
Heptachlor epoxide (isomer B)	1.99	2.18		ug/L		110	70 - 130
Hexachlorobenzene	1.99	1.93		ug/L		97	70 - 130
Hexachlorocyclopentadiene	1.99	2.21		ug/L		111	70 - 130
Indeno[1,2,3-cd]pyrene	1.99	2.35		ug/L		118	70 - 130
Isophorone	1.99	2.22		ug/L		112	70 - 130
Lindane	1.99	2.27		ug/L		114	70 - 130
Malathion	1.99	2.49		ug/L		125	70 - 130
Methoxychlor	1.99	2.71	*+	ug/L		136	70 - 130
Metolachlor	1.99	2.30		ug/L		116	70 - 130
Metribuzin	1.99	2.29		ug/L		115	70 - 130
Molinate	1.99	2.12		ug/L		107	70 - 130
Naphthalene	1.99	1.97		ug/L		99	70 - 130
Parathion	1.99	2.38		ug/L		120	70 - 130
Pendimethalin (Penoxaline)	1.99	2.28		ug/L		115	70 - 130
Phenanthrene	1.99	2.00		ug/L		101	70 - 130
Propachlor	1.99	2.30		ug/L		115	70 - 130
Pyrene	1.99	2.32		ug/L		117	70 - 130
Simazine	1.99	2.41		ug/L		121	70 - 130
Terbacil	1.99	2.37		ug/L		119	70 - 130
Terbutylazine	1.99	2.37		ug/L		119	70 - 130
Thiobencarb	1.99	2.06		ug/L		103	70 - 130
trans-Nonachlor	1.99	2.13		ug/L		107	70 - 130
Trifluralin	1.99	2.19		ug/L		110	70 - 130
1-Methylnaphthalene	1.99	1.95		ug/L		98	70 - 130
2-Methylnaphthalene	1.99	1.97		ug/L		99	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Nitro-m-xylene	102		70 - 130
Triphenylphosphate	109		70 - 130
Perylene-d12	96		70 - 130

Lab Sample ID: LCSD 380-18009/4-A
Matrix: Water
Analysis Batch: 18233

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 18009

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2,4'-DDD	1.99	2.23		ug/L		112	70 - 130	10	20
2,4'-DDE	1.99	2.33		ug/L		117	70 - 130	10	20
2,4'-DDT	1.99	2.68	*+	ug/L		135	70 - 130	10	20
2,4-Dinitrotoluene	1.99	2.05		ug/L		103	70 - 130	7	20
2,6-Dinitrotoluene	1.99	2.29		ug/L		115	70 - 130	3	20
4,4'-DDD	1.99	2.62	*+	ug/L		132	70 - 130	6	20
4,4'-DDE	1.99	2.37		ug/L		119	70 - 130	9	20
4,4'-DDT	1.99	2.64	*+	ug/L		133	70 - 130	10	20
Acenaphthene	1.99	1.99		ug/L		100	70 - 130	1	20
Acenaphthylene	1.99	2.01		ug/L		101	70 - 130	2	20

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QC Sample Results

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

Job ID: 380-21454-1

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

Lab Sample ID: LCSD 380-18009/4-A
Matrix: Water
Analysis Batch: 18233

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 18009

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD
									Limit
Acetochlor	1.99	2.29		ug/L		115	70 - 130	5	20
Alachlor	1.99	2.23		ug/L		112	70 - 130	3	20
alpha-BHC	1.99	2.22		ug/L		112	70 - 130	1	20
alpha-Chlordane	1.99	2.26		ug/L		114	70 - 130	6	20
Anthracene	1.99	2.11		ug/L		106	70 - 130	3	20
Atrazine	1.99	2.28		ug/L		115	70 - 130	3	20
Benz(a)anthracene	1.99	2.59		ug/L		130	70 - 130	11	20
Benzo[a]pyrene	1.99	2.26		ug/L		114	70 - 130	3	20
Benzo[b]fluoranthene	1.99	2.32		ug/L		117	70 - 130	3	20
Benzo[g,h,i]perylene	1.99	2.43		ug/L		122	70 - 130	4	20
Benzo[k]fluoranthene	1.99	2.29		ug/L		115	70 - 130	2	20
beta-BHC	1.99	2.25		ug/L		113	70 - 130	1	20
Bromacil	1.99	2.67	*+	ug/L		134	70 - 130	1	20
Butachlor	1.99	2.43		ug/L		122	70 - 130	4	20
Butylbenzylphthalate	1.99	2.53		ug/L		127	70 - 130	6	20
Caffeine	1.99	1.89		ug/L		95	45 - 137	3	20
Chlorobenzilate	1.99	2.56		ug/L		129	70 - 130	6	20
Chloroneb	1.99	2.16		ug/L		109	70 - 130	1	20
Chlorothalonil (Draconil, Bravo)	1.99	2.45		ug/L		123	70 - 130	3	20
Chlorpyrifos	1.99	2.42		ug/L		122	70 - 130	6	20
Chrysene	1.99	2.19		ug/L		110	70 - 130	1	20
delta-BHC	1.99	2.29		ug/L		115	70 - 130	3	20
Di(2-ethylhexyl)adipate	1.99	2.71	*+	ug/L		136	70 - 130	12	20
Bis(2-ethylhexyl) phthalate	1.99	2.44		ug/L		123	70 - 130	15	20
Diazinon (Qualitative)	1.99	2.11		ug/L		106	15 - 132	4	20
Dibenz(a,h)anthracene	1.99	2.43		ug/L		122	70 - 130	5	20
Diclorvos (DDVP)	1.99	2.13		ug/L		107	70 - 130	5	20
Dieldrin	1.99	2.30		ug/L		116	70 - 130	7	20
Diethylphthalate	1.99	2.03		ug/L		102	70 - 130	1	20
Dimethoate	1.99	1.88		ug/L		95	35 - 100	8	20
Dimethylphthalate	1.99	2.20		ug/L		111	70 - 130	0	20
Di-n-butyl phthalate	3.98	4.39		ug/L		110	70 - 130	5	20
Di-n-octyl phthalate	1.99	2.08		ug/L		105	70 - 130	5	20
Endosulfan I (Alpha)	1.99	2.20		ug/L		110	70 - 130	3	20
Endosulfan II (Beta)	1.99	2.43		ug/L		122	70 - 130	6	20
Endosulfan sulfate	1.99	2.55		ug/L		128	70 - 130	6	20
Endrin	1.99	2.66	*+	ug/L		134	70 - 130	2	20
Endrin aldehyde	1.99	2.35		ug/L		118	70 - 130	12	20
EPTC	1.99	2.14		ug/L		107	70 - 130	3	20
Fluoranthene	1.99	2.43		ug/L		122	70 - 130	6	20
Fluorene	1.99	2.12		ug/L		106	70 - 130	1	20
gamma-Chlordane	1.99	2.26		ug/L		114	70 - 130	6	20
Heptachlor	1.99	2.18		ug/L		110	70 - 130	6	20
Heptachlor epoxide (isomer B)	1.99	2.30		ug/L		116	70 - 130	5	20
Hexachlorobenzene	1.99	2.01		ug/L		101	70 - 130	4	20
Hexachlorocyclopentadiene	1.99	2.33		ug/L		117	70 - 130	5	20
Indeno[1,2,3-cd]pyrene	1.99	2.44		ug/L		123	70 - 130	4	20
Isophorone	1.99	2.25		ug/L		113	70 - 130	1	20
Lindane	1.99	2.34		ug/L		118	70 - 130	3	20

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QC Sample Results

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

Job ID: 380-21454-1

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

Lab Sample ID: LCSD 380-18009/4-A
Matrix: Water
Analysis Batch: 18233

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 18009

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Malathion	1.99	2.56		ug/L		129	70 - 130	3	20
Methoxychlor	1.99	2.98	*+	ug/L		150	70 - 130	9	20
Metolachlor	1.99	2.33		ug/L		117	70 - 130	1	20
Metribuzin	1.99	2.34		ug/L		118	70 - 130	2	20
Molinate	1.99	2.15		ug/L		108	70 - 130	1	20
Naphthalene	1.99	1.99		ug/L		100	70 - 130	1	20
Parathion	1.99	2.49		ug/L		125	70 - 130	4	20
Pendimethalin (Penoxaline)	1.99	2.38		ug/L		120	70 - 130	4	20
Phenanthrene	1.99	2.06		ug/L		103	70 - 130	3	20
Propachlor	1.99	2.31		ug/L		116	70 - 130	1	20
Pyrene	1.99	2.50		ug/L		125	70 - 130	7	20
Simazine	1.99	2.44		ug/L		123	70 - 130	1	20
Terbacil	1.99	2.41		ug/L		121	70 - 130	1	20
Terbutylazine	1.99	2.48		ug/L		125	70 - 130	5	20
Thiobencarb	1.99	2.17		ug/L		109	70 - 130	5	20
trans-Nonachlor	1.99	2.34		ug/L		118	70 - 130	9	20
Trifluralin	1.99	2.24		ug/L		112	70 - 130	2	20
1-Methylnaphthalene	1.99	2.03		ug/L		102	70 - 130	4	20
2-Methylnaphthalene	1.99	2.03		ug/L		102	70 - 130	3	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2-Nitro-m-xylene	100		70 - 130
Triphenylphosphate	113		70 - 130
Perylene-d12	100		70 - 130

Lab Sample ID: MRL 380-18009/2-A
Matrix: Water
Analysis Batch: 18233

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18009

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
2,4'-DDD	0.0989	0.160	^3+	ug/L		161	50 - 150
2,4'-DDE	0.0989	0.111		ug/L		113	50 - 150
2,4'-DDT	0.0989	0.113		ug/L		115	50 - 150
2,4-Dinitrotoluene	0.0989	0.111		ug/L		112	50 - 150
2,6-Dinitrotoluene	0.0989	0.103		ug/L		104	50 - 150
4,4'-DDD	0.0989	0.119		ug/L		120	50 - 150
4,4'-DDE	0.0989	0.107		ug/L		108	50 - 150
4,4'-DDT	0.0989	0.119		ug/L		120	50 - 150
Acenaphthene	0.0989	0.0964	J	ug/L		97	50 - 150
Acenaphthylene	0.0989	0.0893	J	ug/L		90	50 - 150
Acetochlor	0.0495	0.0479	J	ug/L		97	50 - 150
Alachlor	0.0495	0.0607		ug/L		123	50 - 150
alpha-BHC	0.0989	0.115		ug/L		116	50 - 150
alpha-Chlordane	0.0495	0.0548		ug/L		111	50 - 150
Anthracene	0.0198	0.0203		ug/L		103	50 - 150
Atrazine	0.0495	0.0533		ug/L		108	50 - 150
Benz(a)anthracene	0.0495	0.0616		ug/L		125	50 - 150
Benzo[a]pyrene	0.0198	0.0230		ug/L		116	50 - 150

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QC Sample Results

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

Job ID: 380-21454-1

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

Lab Sample ID: MRL 380-18009/2-A
Matrix: Water
Analysis Batch: 18233

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18009

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[b]fluoranthene	0.0198	0.0237		ug/L		120	50 - 150
Benzo[g,h,i]perylene	0.0495	0.0576		ug/L		117	50 - 150
Benzo[k]fluoranthene	0.0198	0.0216		ug/L		109	50 - 150
beta-BHC	0.0989	0.121		ug/L		123	50 - 150
Bromacil	0.0989	0.122		ug/L		123	50 - 150
Butachlor	0.0495	0.0617		ug/L		125	50 - 150
Butylbenzylphthalate	0.148	0.212	J	ug/L		143	50 - 150
Caffeine	0.0495	0.0458	J	ug/L		93	50 - 150
Chlorobenzilate	0.0989	0.124		ug/L		126	50 - 150
Chloroneb	0.0989	0.112		ug/L		113	50 - 150
Chlorothalonil (Draconil, Bravo)	0.0989	0.112		ug/L		113	50 - 150
Chlorpyrifos	0.0495	0.0537		ug/L		109	50 - 150
Chrysene	0.0198	0.0240		ug/L		121	50 - 150
delta-BHC	0.0989	0.123		ug/L		124	50 - 150
Di(2-ethylhexyl)adipate	0.297	0.444	J	ug/L		150	50 - 150
Bis(2-ethylhexyl) phthalate	0.593	0.745		ug/L		126	50 - 150
Diazinon (Qualitative)	0.0989	0.104		ug/L		105	15 - 132
Dibenz(a,h)anthracene	0.0495	0.0555		ug/L		112	50 - 150
Diclorvos (DDVP)	0.0495	0.0972	^3+	ug/L		196	50 - 150
Dieldrin	0.0989	0.118	J	ug/L		119	50 - 150
Diethylphthalate	0.148	0.187	J	ug/L		126	50 - 150
Dimethoate	0.0989	0.0772	J	ug/L		78	35 - 100
Dimethylphthalate	0.297	0.314	J	ug/L		106	50 - 150
Di-n-butyl phthalate	0.297	0.358	J	ug/L		121	49 - 243
Di-n-octyl phthalate	0.0989	0.110		ug/L		111	50 - 150
Endosulfan I (Alpha)	0.0989	0.115		ug/L		116	50 - 150
Endosulfan II (Beta)	0.0989	0.137		ug/L		139	50 - 150
Endosulfan sulfate	0.0989	0.111		ug/L		112	50 - 150
Endrin	0.0989	0.152	^3+	ug/L		153	50 - 150
Endrin aldehyde	0.0989	0.0937	J	ug/L		95	50 - 150
EPTC	0.0989	0.102		ug/L		103	50 - 150
Fluoranthene	0.0495	0.0578	J	ug/L		117	50 - 150
Fluorene	0.0495	0.0503		ug/L		102	50 - 150
gamma-Chlordane	0.0495	0.0553		ug/L		112	50 - 150
Heptachlor	0.0396	0.0468		ug/L		118	50 - 150
Heptachlor epoxide (isomer B)	0.0495	0.0543		ug/L		110	50 - 150
Hexachlorobenzene	0.0495	0.0594		ug/L		120	50 - 150
Hexachlorocyclopentadiene	0.0495	0.0541		ug/L		109	50 - 150
Indeno[1,2,3-cd]pyrene	0.0495	0.0524		ug/L		106	50 - 150
Isophorone	0.0989	0.109	J	ug/L		111	50 - 150
Lindane	0.0495	0.0458		ug/L		93	50 - 150
Malathion	0.0989	0.116		ug/L		117	50 - 150
Methoxychlor	0.0989	0.124		ug/L		126	50 - 150
Metolachlor	0.0495	0.0626		ug/L		127	50 - 150
Metribuzin	0.0495	0.0464	J	ug/L		94	50 - 150
Molinate	0.0989	0.107		ug/L		108	50 - 150
Naphthalene	0.0989	0.103	J	ug/L		104	50 - 150
Parathion	0.0989	0.133		ug/L		134	50 - 150
Pendimethalin (Penoxaline)	0.0989	0.124		ug/L		125	50 - 150

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QC Sample Results

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

Job ID: 380-21454-1

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

Lab Sample ID: MRL 380-18009/2-A
Matrix: Water
Analysis Batch: 18233

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 18009

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Phenanthrene	0.0198	0.0242	J	ug/L		122	50 - 150
Propachlor	0.0495	0.0614		ug/L		124	50 - 150
Pyrene	0.0495	0.0624		ug/L		126	50 - 150
Simazine	0.0495	0.0617		ug/L		125	50 - 150
Terbacil	0.0989	0.127		ug/L		128	50 - 150
Terbutylazine	0.0989	0.118		ug/L		120	50 - 150
Thiobencarb	0.0989	0.122	J	ug/L		124	50 - 150
trans-Nonachlor	0.0495	0.0531		ug/L		107	50 - 150
Trifluralin	0.0989	0.0853	J	ug/L		86	50 - 150
1-Methylnaphthalene	0.0989	0.109		ug/L		110	50 - 150
2-Methylnaphthalene	0.0989	0.101		ug/L		102	50 - 150

Surrogate	MRL %Recovery	MRL Qualifier	Limits
2-Nitro-m-xylene	101		70 - 130
Triphenylphosphate	112		70 - 130
Perylene-d12	96		70 - 130

Lab Sample ID: 380-21450-C-1-A MS
Matrix: Water
Analysis Batch: 18233

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 18009

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
2,4'-DDD	ND	^3+	1.98	2.04		ug/L		103	70 - 130
2,4'-DDE	ND		1.98	2.16		ug/L		109	70 - 130
2,4'-DDT	ND	*+	1.98	2.41		ug/L		122	70 - 130
2,4-Dinitrotoluene	ND		1.98	2.15		ug/L		108	70 - 130
2,6-Dinitrotoluene	ND		1.98	2.27		ug/L		115	70 - 130
4,4'-DDD	ND	*+	1.98	2.47		ug/L		125	70 - 130
4,4'-DDE	ND		1.98	2.14		ug/L		108	70 - 130
4,4'-DDT	ND	*+	1.98	2.38		ug/L		120	70 - 130
Acenaphthene	ND		1.98	1.99		ug/L		101	70 - 130
Acenaphthylene	ND		1.98	2.04		ug/L		103	70 - 130
Acetochlor	ND		1.98	2.28		ug/L		115	70 - 130
Alachlor	ND		1.98	2.19		ug/L		111	70 - 130
alpha-BHC	ND		1.98	2.21		ug/L		112	70 - 130
alpha-Chlordane	ND		1.98	2.13		ug/L		108	70 - 130
Anthracene	ND		1.98	1.81		ug/L		92	70 - 130
Atrazine	ND		1.98	2.21		ug/L		112	70 - 130
Benz(a)anthracene	ND		1.98	2.27		ug/L		115	70 - 130
Benzo[a]pyrene	ND		1.98	2.02		ug/L		102	70 - 130
Benzo[b]fluoranthene	ND		1.98	2.22		ug/L		112	70 - 130
Benzo[g,h,i]perylene	ND		1.98	2.31		ug/L		117	70 - 130
Benzo[k]fluoranthene	ND		1.98	2.31		ug/L		117	70 - 130
beta-BHC	ND		1.98	2.24		ug/L		113	70 - 130
Bromacil	ND	*+ F1	1.98	2.66	F1	ug/L		134	70 - 130
Butachlor	ND		1.98	2.33		ug/L		118	70 - 130
Butylbenzylphthalate	ND		1.98	2.40		ug/L		121	70 - 130
Caffeine	ND		1.98	1.85		ug/L		94	46 - 144

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QC Sample Results

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

Job ID: 380-21454-1

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

Lab Sample ID: 380-21450-C-1-A MS
Matrix: Water
Analysis Batch: 18233

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 18009

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier	Added	Result	Qualifier				
Chlorobenzilate	ND		1.98	2.43		ug/L		123	70 - 130
Chloroneb	ND		1.98	2.16		ug/L		109	70 - 130
Chlorothalonil (Draconil, Bravo)	ND		1.98	2.42		ug/L		122	70 - 130
Chlorpyrifos	ND		1.98	2.37		ug/L		120	70 - 130
Chrysene	ND		1.98	2.25		ug/L		113	70 - 130
delta-BHC	ND		1.98	2.23		ug/L		113	70 - 130
Di(2-ethylhexyl)adipate	ND	*+	1.98	2.31		ug/L		113	70 - 130
Bis(2-ethylhexyl) phthalate	ND		1.98	2.07		ug/L		105	70 - 130
Diazinon (Qualitative)	ND		1.98	2.13		ug/L		108	15 - 132
Dibenz(a,h)anthracene	ND		1.98	2.24		ug/L		113	70 - 130
Diclorvos (DDVP)	ND	^3+	1.98	2.19		ug/L		111	70 - 130
Dieldrin	ND		1.98	2.18		ug/L		110	70 - 130
Diethylphthalate	ND		1.98	2.07		ug/L		105	70 - 130
Dimethoate	ND	*+	1.98	1.78		ug/L		90	34 - 111
Dimethylphthalate	ND		1.98	2.18		ug/L		110	70 - 130
Di-n-butyl phthalate	ND		3.96	4.20		ug/L		106	70 - 130
Di-n-octyl phthalate	ND		1.98	1.94		ug/L		98	70 - 130
Endosulfan I (Alpha)	ND		1.98	2.14		ug/L		108	70 - 130
Endosulfan II (Beta)	ND		1.98	2.30		ug/L		116	70 - 130
Endosulfan sulfate	ND		1.98	2.44		ug/L		124	70 - 130
Endrin	ND	*+ ^3+	1.98	2.40		ug/L		122	70 - 130
Endrin aldehyde	ND		1.98	2.00		ug/L		101	70 - 130
EPTC	ND		1.98	2.10		ug/L		106	70 - 130
Fluoranthene	ND		1.98	2.33		ug/L		118	70 - 130
Fluorene	ND		1.98	2.14		ug/L		108	70 - 130
gamma-Chlordane	ND		1.98	2.13		ug/L		108	70 - 130
Heptachlor	ND		1.98	2.11		ug/L		107	70 - 130
Heptachlor epoxide (isomer B)	ND		1.98	2.24		ug/L		113	70 - 130
Hexachlorobenzene	ND		1.98	1.99		ug/L		100	70 - 130
Hexachlorocyclopentadiene	ND		1.98	2.21		ug/L		112	70 - 130
Indeno[1,2,3-cd]pyrene	ND		1.98	2.28		ug/L		115	70 - 130
Isophorone	ND		1.98	2.22		ug/L		112	70 - 130
Lindane	ND		1.98	2.33		ug/L		118	70 - 130
Malathion	ND	F1	1.98	2.59	F1	ug/L		131	70 - 130
Methoxychlor	ND	*+ F1	1.98	2.75	F1	ug/L		139	70 - 130
Metolachlor	ND		1.98	2.33		ug/L		118	70 - 130
Metribuzin	ND		1.98	2.37		ug/L		120	70 - 130
Molinate	ND		1.98	2.19		ug/L		111	70 - 130
Naphthalene	ND		1.98	1.99		ug/L		101	70 - 130
Parathion	ND		1.98	2.43		ug/L		123	70 - 130
Pendimethalin (Penoxaline)	ND		1.98	2.37		ug/L		120	70 - 130
Phenanthrene	ND		1.98	2.05		ug/L		103	70 - 130
Propachlor	ND		1.98	2.29		ug/L		116	70 - 130
Pyrene	ND		1.98	2.37		ug/L		120	70 - 130
Simazine	ND		1.98	2.45		ug/L		124	70 - 130
Terbacil	ND		1.98	2.35		ug/L		119	70 - 130
Terbutylazine	ND		1.98	2.41		ug/L		122	70 - 130
Thiobencarb	ND		1.98	2.11		ug/L		107	70 - 130
trans-Nonachlor	ND		1.98	2.21		ug/L		112	70 - 130

Eurofins Eaton Monrovia

QC Sample Results

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

Job ID: 380-21454-1

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

Lab Sample ID: 380-21450-C-1-A MS

Matrix: Water

Analysis Batch: 18233

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 18009

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier	Added	Result	Qualifier				
Trifluralin	ND		1.98	2.29		ug/L		116	70 - 130
1-Methylnaphthalene	ND		1.98	2.01		ug/L		102	70 - 130
2-Methylnaphthalene	ND		1.98	1.99		ug/L		101	70 - 130
MS MS									
Surrogate	%Recovery	MS Qualifier	MS Limits						
2-Nitro-m-xylene	101		70 - 130						
Triphenylphosphate	109		70 - 130						
Perylene-d12	95		70 - 130						

Lab Sample ID: 380-21464-J-1-A DU

Matrix: Water

Analysis Batch: 18233

Client Sample ID: Duplicate

Prep Type: Total/NA

Prep Batch: 18009

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
2,4'-DDD	ND	^3+	ND		ug/L		NC	20
2,4'-DDE	ND		ND		ug/L		NC	20
2,4'-DDT	ND	*+	ND	*+	ug/L		NC	20
2,4-Dinitrotoluene	ND		ND		ug/L		NC	20
2,6-Dinitrotoluene	ND		ND		ug/L		NC	20
4,4'-DDD	ND	*+	ND	*+	ug/L		NC	20
4,4'-DDE	ND		ND		ug/L		NC	20
4,4'-DDT	ND	*+	ND	*+	ug/L		NC	20
Acenaphthene	ND		ND		ug/L		NC	20
Acenaphthylene	ND		ND		ug/L		NC	20
Acetochlor	ND		ND		ug/L		NC	20
Alachlor	ND		ND		ug/L		NC	20
alpha-BHC	ND		ND		ug/L		NC	20
alpha-Chlordane	ND		ND		ug/L		NC	20
Anthracene	ND		ND		ug/L		NC	20
Atrazine	ND		ND		ug/L		NC	20
Benz(a)anthracene	ND		ND		ug/L		NC	20
Benzo[a]pyrene	ND		ND		ug/L		NC	20
Benzo[b]fluoranthene	ND		ND		ug/L		NC	20
Benzo[g,h,i]perylene	ND		ND		ug/L		NC	20
Benzo[k]fluoranthene	ND		ND		ug/L		NC	20
beta-BHC	ND		ND		ug/L		NC	20
Bromacil	ND	*+	ND	*+	ug/L		NC	20
Butachlor	ND		ND		ug/L		NC	20
Butylbenzylphthalate	ND		ND		ug/L		NC	20
Caffeine	ND		ND		ug/L		NC	20
Chlorobenzilate	ND		ND		ug/L		NC	20
Chloroneb	ND		ND		ug/L		NC	20
Chlorothalonil (Draconil, Bravo)	ND		ND		ug/L		NC	20
Chlorpyrifos	ND		ND		ug/L		NC	20
Chrysene	ND		ND		ug/L		NC	20
delta-BHC	ND		ND		ug/L		NC	20
Di(2-ethylhexyl)adipate	ND	*+	ND	*+	ug/L		NC	20
Bis(2-ethylhexyl) phthalate	ND		ND		ug/L		NC	20

Eurofins Eaton Monrovia

QC Sample Results

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

Job ID: 380-21454-1

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

Lab Sample ID: 380-21464-J-1-A DU
Matrix: Water
Analysis Batch: 18233

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 18009

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

<i>Surrogate</i>	<i>DU</i> <i>%Recovery</i>	<i>DU</i> <i>Qualifier</i>	<i>Limits</i>
2-Nitro-m-xylene	104		70 - 130

QC Sample Results

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

Job ID: 380-21454-1

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

Lab Sample ID: 380-21464-J-1-A DU
Matrix: Water
Analysis Batch: 18233

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 18009

Surrogate	%Recovery	DU DU Qualifier	Limits
Triphenylphosphate	113		70 - 130
Perylene-d12	98		70 - 130

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

Lab Sample ID: 100205-B1
Matrix: water
Analysis Batch: O-38124

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: O-38124_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		0.005	0.001	µg/L		09/20/22 00:00	09/27/22 00:03	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		09/20/22 00:00	09/27/22 00:03	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		09/20/22 00:00	09/27/22 00:03	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		09/20/22 00:00	09/27/22 00:03	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		09/20/22 00:00	09/27/22 00:03	1
Acenaphthene	ND		0.005	0.001	µg/L		09/20/22 00:00	09/27/22 00:03	1
Acenaphthylene	ND		0.005	0.001	µg/L		09/20/22 00:00	09/27/22 00:03	1
Anthracene	ND		0.005	0.001	µg/L		09/20/22 00:00	09/27/22 00:03	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		09/20/22 00:00	09/27/22 00:03	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		09/20/22 00:00	09/27/22 00:03	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		09/20/22 00:00	09/27/22 00:03	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		09/20/22 00:00	09/27/22 00:03	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		09/20/22 00:00	09/27/22 00:03	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		09/20/22 00:00	09/27/22 00:03	1
Biphenyl	ND		0.005	0.001	µg/L		09/20/22 00:00	09/27/22 00:03	1
Chrysene	ND		0.005	0.001	µg/L		09/20/22 00:00	09/27/22 00:03	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		09/20/22 00:00	09/27/22 00:03	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		09/20/22 00:00	09/27/22 00:03	1
Dibenzothiophene	ND		0.005	0.001	µg/L		09/20/22 00:00	09/27/22 00:03	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		09/20/22 00:00	09/27/22 00:03	1
Fluoranthene	ND		0.005	0.001	µg/L		09/20/22 00:00	09/27/22 00:03	1
Fluorene	ND		0.005	0.001	µg/L		09/20/22 00:00	09/27/22 00:03	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		09/20/22 00:00	09/27/22 00:03	1
Naphthalene	ND		0.005	0.001	µg/L		09/20/22 00:00	09/27/22 00:03	1
Perylene	ND		0.005	0.001	µg/L		09/20/22 00:00	09/27/22 00:03	1
Phenanthrene	ND		0.005	0.001	µg/L		09/20/22 00:00	09/27/22 00:03	1
Pyrene	ND		0.005	0.001	µg/L		09/20/22 00:00	09/27/22 00:03	1

Surrogate	%Recovery	Blank Blank Qualifier	Limits	Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	87		65 - 113	09/20/22 00:00	09/27/22 00:03	1
(d10-Phenanthrene)	97		80 - 111	09/20/22 00:00	09/27/22 00:03	1
(d12-Chrysene)	102		60 - 139	09/20/22 00:00	09/27/22 00:03	1
(d12-Perylene)	88		36 - 161	09/20/22 00:00	09/27/22 00:03	1
(d8-Naphthalene)	75		44 - 119	09/20/22 00:00	09/27/22 00:03	1

QC Sample Results

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

Job ID: 380-21454-1

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

Lab Sample ID: 100205-BS1
Matrix: water
Analysis Batch: O-38124

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: O-38124_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1-Methylnaphthalene	0.5	0.449		µg/L		90	49 - 117
1-Methylphenanthrene	0.5	0.522		µg/L		104	66 - 127
2,3,5-Trimethylnaphthalene	0.5	0.351		µg/L		70	57 - 120
2,6-Dimethylnaphthalene	0.5	0.39		µg/L		78	54 - 117
2-Methylnaphthalene	0.5	0.447		µg/L		89	47 - 130
Acenaphthene	0.5	0.332		µg/L		66	53 - 131
Acenaphthylene	0.5	0.33		µg/L		66	43 - 140
Anthracene	0.5	0.462		µg/L		92	58 - 135
Benz[a]anthracene	0.5	0.438		µg/L		88	55 - 145
Benzo[a]pyrene	0.5	0.431		µg/L		86	51 - 143
Benzo[b]fluoranthene	0.5	0.539		µg/L		108	46 - 165
Benzo[e]pyrene	0.5	0.487		µg/L		97	42 - 152
Benzo[g,h,i]perylene	0.5	0.481		µg/L		96	63 - 133
Benzo[k]fluoranthene	0.5	0.483		µg/L		97	56 - 145
Biphenyl	0.5	0.46		µg/L		92	56 - 119
Chrysene	0.5	0.45		µg/L		90	56 - 141
Dibenz[a,h]anthracene	0.5	0.486		µg/L		97	55 - 150
Dibenzo[a,l]pyrene	0.5	0.399		µg/L		80	50 - 150
Dibenzothiophene	0.5	0.47		µg/L		94	75 - 113
Disalicylidenepropanediamine	50	36		µg/L		72	50 - 150
Fluoranthene	0.5	0.473		µg/L		95	60 - 146
Fluorene	0.5	0.371		µg/L		74	58 - 131
Indeno[1,2,3-cd]pyrene	0.5	0.508		µg/L		102	50 - 151
Naphthalene	0.5	0.395		µg/L		79	41 - 126
Perylene	0.5	0.463		µg/L		93	48 - 141
Phenanthrene	0.5	0.468		µg/L		94	67 - 127
Pyrene	0.5	0.479		µg/L		96	54 - 156

Surrogate	LCS %Recovery	LCS Qualifier	Limits
(d10-Acenaphthene)	71		65 - 113
(d10-Phenanthrene)	101		80 - 111
(d12-Chrysene)	103		60 - 139
(d12-Perylene)	101		36 - 161
(d8-Naphthalene)	87		44 - 119

Lab Sample ID: 100205-BS2
Matrix: water
Analysis Batch: O-38124

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: O-38124_P

Analyte	Spike Added	LCS DUP Result	LCS DUP Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1-Methylnaphthalene	0.5	0.397		µg/L		79	49 - 117	13	30
1-Methylphenanthrene	0.5	0.619		µg/L		124	66 - 127	18	30
2,3,5-Trimethylnaphthalene	0.5	0.444		µg/L		89	57 - 120	24	30
2,6-Dimethylnaphthalene	0.5	0.431		µg/L		86	54 - 117	10	30
2-Methylnaphthalene	0.5	0.399		µg/L		80	47 - 130	11	30
Acenaphthene	0.5	0.425		µg/L		85	53 - 131	25	30
Acenaphthylene	0.5	0.427		µg/L		85	43 - 140	25	30
Anthracene	0.5	0.458		µg/L		92	58 - 135	0	30

Eurofins Eaton Monrovia

QC Sample Results

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

Job ID: 380-21454-1

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

Lab Sample ID: 100205-BS2
Matrix: water
Analysis Batch: O-38124

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: O-38124_P

Analyte	Spike Added	LCS DUP Result	LCS DUP Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
Benz[a]anthracene	0.5	0.462		µg/L		92	55 - 145	4	30	
Benzo[a]pyrene	0.5	0.479		µg/L		96	51 - 143	11	30	
Benzo[b]fluoranthene	0.5	0.561		µg/L		112	46 - 165	4	30	
Benzo[e]pyrene	0.5	0.523		µg/L		105	42 - 152	8	30	
Benzo[g,h,i]perylene	0.5	0.485		µg/L		97	63 - 133	1	30	
Benzo[k]fluoranthene	0.5	0.403		µg/L		81	56 - 145	18	30	
Biphenyl	0.5	0.417		µg/L		83	56 - 119	10	30	
Chrysene	0.5	0.452		µg/L		90	56 - 141	0	30	
Dibenz[a,h]anthracene	0.5	0.527		µg/L		105	55 - 150	8	30	
Dibenzo[a,l]pyrene	0.5	0.423		µg/L		85	50 - 150	6	30	
Dibenzothiophene	0.5	0.472		µg/L		94	75 - 113	0	30	
Disalicylidenepropanediamine	50	45.5		µg/L		91	50 - 150	23	30	
Fluoranthene	0.5	0.585		µg/L		117	60 - 146	21	30	
Fluorene	0.5	0.441		µg/L		88	58 - 131	17	30	
Indeno[1,2,3-cd]pyrene	0.5	0.564		µg/L		113	50 - 151	10	30	
Naphthalene	0.5	0.38		µg/L		76	41 - 126	4	30	
Perylene	0.5	0.495		µg/L		99	48 - 141	6	30	
Phenanthrene	0.5	0.46		µg/L		92	67 - 127	2	30	
Pyrene	0.5	0.591		µg/L		118	54 - 156	21	30	

Surrogate	LCS DUP %Recovery	LCS DUP Qualifier	Limits
(d10-Acenaphthene)	89		65 - 113
(d10-Phenanthrene)	101		80 - 111
(d12-Chrysene)	104		60 - 139
(d12-Perylene)	103		36 - 161
(d8-Naphthalene)	80		44 - 119

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

Lab Sample ID: 22VG39I16B
Matrix: WATER
Analysis Batch: 22VG39I16

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GASOLINE	ND	U	0.02		mg/L			09/22/22 17:49	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
BROMOFLUOROBENZENE					09/22/22 17:49	1

Lab Sample ID: 22VG39I16L
Matrix: WATER
Analysis Batch: 22VG39I16

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
GASOLINE	0.5	0.42		mg/L		84	60 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
BROMOFLUOROBENZENE	107		70 - 130

Eurofins Eaton Monrovia

QC Sample Results

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

Job ID: 380-21454-1

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

Lab Sample ID: 22DSJ003WB
Matrix: WATER
Analysis Batch: 22DSJ003W

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DIESEL	ND	U	0.025		mg/L			10/03/22 12:30	1
MOTOR OIL	ND	U	0.05		mg/L			10/03/22 12:30	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
BROMOBENZENE								10/03/22 12:30	1
HEXACOSANE								10/03/22 12:30	1

Lab Sample ID: 22DSJ003WL
Matrix: WATER
Analysis Batch: 22DSJ003W

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
DIESEL	2.5	2.47		mg/L		99	50 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
BROMOBENZENE	86		60 - 130				
HEXACOSANE	86		60 - 130				

QC Association Summary

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

Job ID: 380-21454-1

GC/MS Semi VOA

Prep Batch: 18009

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-21454-1	HALAWA WELLS P1 (331-023-WL065)	Total/NA	Drinking Water	525.2	
MB 380-18009/1-A	Method Blank	Total/NA	Water	525.2	
LCS 380-18009/3-A	Lab Control Sample	Total/NA	Water	525.2	
LCSD 380-18009/4-A	Lab Control Sample Dup	Total/NA	Water	525.2	
MRL 380-18009/2-A	Lab Control Sample	Total/NA	Water	525.2	
380-21450-C-1-A MS	Matrix Spike	Total/NA	Water	525.2	
380-21464-J-1-A DU	Duplicate	Total/NA	Water	525.2	

Analysis Batch: 18233

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-21454-1	HALAWA WELLS P1 (331-023-WL065)	Total/NA	Drinking Water	525.2	18009
MB 380-18009/1-A	Method Blank	Total/NA	Water	525.2	18009
LCS 380-18009/3-A	Lab Control Sample	Total/NA	Water	525.2	18009
LCSD 380-18009/4-A	Lab Control Sample Dup	Total/NA	Water	525.2	18009
MRL 380-18009/2-A	Lab Control Sample	Total/NA	Water	525.2	18009
380-21450-C-1-A MS	Matrix Spike	Total/NA	Water	525.2	18009
380-21464-J-1-A DU	Duplicate	Total/NA	Water	525.2	18009

Subcontract

Analysis Batch: O-38124

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-21454-1	HALAWA WELLS P1 (331-023-WL065)	Total/NA	Drinking Water	625 PAH Physis LL (EAL) + TICs	O-38124_P
100205-B1	Method Blank	Total/NA	water	625 PAH Physis LL (EAL) + TICs	O-38124_P
100205-BS1	Lab Control Sample	Total/NA	water	625 PAH Physis LL (EAL) + TICs	O-38124_P
100205-BS2	Lab Control Sample Dup	Total/NA	water	625 PAH Physis LL (EAL) + TICs	O-38124_P

Analysis Batch: 22DSJ003W

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-21454-1	HALAWA WELLS P1 (331-023-WL065)	Total/NA	Drinking Water	8015 Gas (Purgeable) LL (EAL)	
22DSJ003WB	Method Blank	Total/NA	WATER	8015 Gas (Purgeable) LL (EAL)	
22DSJ003WL	Lab Control Sample	Total/NA	WATER	8015 Gas (Purgeable) LL (EAL)	

Analysis Batch: 22VG39116

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-21454-1	HALAWA WELLS P1 (331-023-WL065)	Total/NA	Drinking Water	8015 Diesel LL (EAL) and Motor Oil	
380-21454-2	TRAVEL BLANK	Total/NA	Water	8015 Gas (Purgeable) LL (EAL)	
22VG39116B	Method Blank	Total/NA	WATER	8015 Diesel LL (EAL) and Motor Oil	

Eurofins Eaton Monrovia

QC Association Summary

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

Job ID: 380-21454-1

Subcontract (Continued)

Analysis Batch: 22VG39116 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
22VG39116L	Lab Control Sample	Total/NA	WATER	8015 Diesel LL (EAL) and Motor Oil	

Prep Batch: O-38124_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-21454-1	HALAWA WELLS P1 (331-023-WL065)	Total/NA	Drinking Water	EPA_625	
100205-B1	Method Blank	Total/NA	water	EPA_625	
100205-BS1	Lab Control Sample	Total/NA	water	EPA_625	
100205-BS2	Lab Control Sample Dup	Total/NA	water	EPA_625	

Lab Chronicle

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

Job ID: 380-21454-1

Client Sample ID: HALAWA WELLS P1 (331-023-WL065)

Lab Sample ID: 380-21454-1

Date Collected: 09/19/22 10:10

Matrix: Drinking Water

Date Received: 09/20/22 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	525.2			18009	OTM3	EA MON	09/21/22 06:31
Total/NA	Analysis	525.2		1	18233	UJC9	EA MON	09/22/22 17:19
Total/NA	Prep	EPA_625		1	O-38124_P			09/22/22 00:00
Total/NA	Analysis	625 PAH Physis LL (EAL) + TICs		1	O-38124	YC		09/27/22 19:08
Total/NA	Analysis	8015 Diesel LL (EAL) and Motor Oil		1	22VG39I16	SCerva		09/23/22 01:26
Total/NA	Analysis	8015 Gas (Purgeable) LL (EAL)		1	22DSJ003W			10/03/22 14:21

Client Sample ID: TRAVEL BLANK

Lab Sample ID: 380-21454-2

Date Collected: 09/19/22 10:10

Matrix: Water

Date Received: 09/20/22 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	22VG39I16	SCerva		09/23/22 02:04

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: 380-21454-1

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	Caffeine
525.2	525.2	Drinking Water	Chlorobenzilate
525.2	525.2	Drinking Water	Chloroneb
525.2	525.2	Drinking Water	Chlorothalonil (Draconil, Bravo)
525.2	525.2	Drinking Water	Chlorpyrifos
525.2	525.2	Drinking Water	Chrysene
525.2	525.2	Drinking Water	delta-BHC
525.2	525.2	Drinking Water	Diazinon (Qualitative)
525.2	525.2	Drinking Water	Dibenz(a,h)anthracene
525.2	525.2	Drinking Water	Diclorvos (DDVP)
525.2	525.2	Drinking Water	Diethylphthalate
525.2	525.2	Drinking Water	Dimethoate
525.2	525.2	Drinking Water	Dimethylphthalate
525.2	525.2	Drinking Water	Di-n-butyl phthalate
525.2	525.2	Drinking Water	Di-n-octyl phthalate
525.2	525.2	Drinking Water	Endosulfan I (Alpha)
525.2	525.2	Drinking Water	Endosulfan II (Beta)
525.2	525.2	Drinking Water	Endosulfan sulfate
525.2	525.2	Drinking Water	Endrin aldehyde
525.2	525.2	Drinking Water	EPTC
525.2	525.2	Drinking Water	Fluoranthene
525.2	525.2	Drinking Water	Fluorene

Accreditation/Certification Summary

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

Job ID: 380-21454-1

Laboratory: Eurofins Eaton Monrovia (Continued)

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

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

Analysis Method	Prep Method	Matrix	Analyte
525.2	525.2	Drinking Water	gamma-Chlordane
525.2	525.2	Drinking Water	Indeno[1,2,3-cd]pyrene
525.2	525.2	Drinking Water	Isophorone
525.2	525.2	Drinking Water	Malathion
525.2	525.2	Drinking Water	Molinate
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: 380-21454-1

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: 380-21454-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
380-21454-1	HALAWA WELLS P1 (331-023-WL065)	Drinking Water	09/19/22 10:10	09/20/22 10:00
380-21454-2	TRAVEL BLANK	Water	09/19/22 10:10	09/20/22 10:00

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



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

Date: 10-07-2022
EMAX Batch No.: 221269

Attn: Jackie Contreras

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

Subject: Laboratory Report
Project: 380-21454

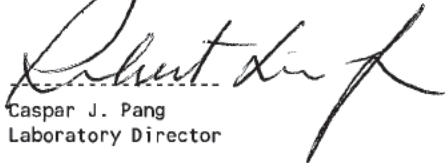
Enclosed is the Laboratory report for samples received on 09/22/22.
The data reported relate only to samples listed below :

Sample ID	Control #	Col Date	Matrix	Analysis
380-21454-1	1269-01	09/19/22	WATER	TPH GASOLINE TPH DIESEL & MOTOR OIL
380-21454-2	1269-02	09/19/22	WATER	TPH GASOLINE

The results are summarized on the following pages.

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

Sincerely yours,


Caspar J. Pang
Laboratory Director

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

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

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

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

Chain of Custody Record
 21269



eurolfins
 Environment Testing
 America

Client Information (Sub Contract Lab)
 Client Contact: Rachelle Arada
 Shipping/Receiving: Rachelle Arada@et.eurolfins.com
 Company: EMAX Laboratories Inc
 Address: 3051 Fujita Street, Torrance, CA, 90505
 City: Torrance
 State Zip: CA, 90505
 Phone: [Blank]
 Email: [Blank]
 Project Name: RED-HILL
 Site: Honolulu BWS Sites

Sampler: Lab PM: Atada, Rachelle
 Phone: E-Mail: Rachelle.Arada@et.eurolfins.com
 Accreditations Required (See note): State - Hawaii
 Carrier Tracking No(s):
 State of Origin: Hawaii
 COC No: 390-22023-1
 Page: 1 of 1
 Job #: 380-21454-1

Due Date Requested: 10/4/2022
 TAT Requested (days):
 Analysis Requested:
 Preservation Codes:
 A - HCL
 B - NaOH
 C - Zn Acetate
 D - Nitric Acid
 E - NaHSO4
 F - MeOH
 G - Amnol
 H - Ascorbic Acid
 I - Ice
 J - DI Water
 K - EDTA
 L - EDA
 M - Hexane
 N - None
 O - AsNaO2
 P - Na2CO3
 Q - Na2SO3
 R - Na2S2O3
 S - H2SO4
 T - TSP Dodecalhydrate
 U - Acetone
 V - MCAA
 W - pH 4.5
 Y - Trizma
 Z - other (specify)

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	MATRIX (W=Water, S=solid, O=volatile, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUB (8015 Gas (Purgeable) LL (EAL)/ 8015 Gas (Purgeable) LL (EAL))	SUB (8015 Diesel LL (EAL) and Motor Oil)/ 8015 Diesel LL (EAL) and Motor Oil	SUB (8015 Jet Fuel 8)/ 8015 Jet Fuel 8	SUB (8015 Jet Fuel 5)/ 8015 Jet Fuel 5	Total Number of Containers	Special Instructions/Note:
1 HALAWA WELLS PUMP 1 (331-023) (380-21454-1)	9/19/22	10:10		Water	X	X	X	X	X		See Attached Instructions	
2 TRAVEL BLANK (380-21454-2)	9/19/22	10:10		Water	X	X	X	X		See Attached Instructions		

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

Possible Hazard Identification
 Unconfirmed
 Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2
 Empty Kit Relinquished by: [Signature]
 Relinquished by: [Signature] G. BETTNER
 Relinquished by: [Signature]
 Relinquished by: [Signature]

Special Instructions/QC Requirements:
 Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return To Client Disposal By Lab Archive For _____ Months
 Date: 9/22/22
 Date/Time: 9/22-22 13:40
 Company: EGA
 Received by: [Signature]
 Date/Time: 9-22-22 11:2
 Company: EMAX
 Cooler Temperature(s) °C and Other Remarks: Temp 2.0
 REPO RPT#D: 21269
 Custody Seal No.:
 Custody Seats Intact:



Type of Delivery	Airbill / Tracking Number	ECN <u>221269</u>
<input type="checkbox"/> Fedex <input type="checkbox"/> UPS <input type="checkbox"/> GSO <input type="checkbox"/> Others		Recipient <u>JHOWIN RAMORA</u>
<input type="checkbox"/> EMAX Courier <input checked="" type="checkbox"/> Client Delivery		Date <u>9/22/22</u> Time <u>1840</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 type="checkbox"/> Tel # / Fax #	<input checked="" type="checkbox"/> Courier Signature	<input checked="" type="checkbox"/> Analysis Required	<input type="checkbox"/> Preservative (if any)	<input checked="" type="checkbox"/> TAT
Safety Issues (if any)	<input type="checkbox"/> High concentrations expected	<input type="checkbox"/> From Superfund Site	<input type="checkbox"/> Rad screening required		

Note: _____

PACKAGING INSPECTION

Container	<input checked="" type="checkbox"/> Cooler	<input type="checkbox"/> Box	<input type="checkbox"/> Other
Condition	<input type="checkbox"/> Custody Seal	<input type="checkbox"/> Intact	<input type="checkbox"/> Damaged
Packaging	<input checked="" type="checkbox"/> Bubble Pack	<input type="checkbox"/> Styrofoam	<input type="checkbox"/> Popsom
Temperatures (Cool, ≤6 °C but not frozen)	<input type="checkbox"/> Cooler 1 _____ °C	<input checked="" type="checkbox"/> Cooler 2 <u>22.0</u> °C	<input type="checkbox"/> Cooler 3 _____ °C
	<input type="checkbox"/> Cooler 6 _____ °C	<input type="checkbox"/> Cooler 7 _____ °C	<input type="checkbox"/> Cooler 8 _____ °C
Thermometer:	A - S/N _____	B - S/N <u>210740237</u>	C - S/N _____
			<input checked="" type="checkbox"/> D - S/N <u>210740272</u>

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

Note: _____

DISCREPANCIES

LabSampleID	LabSampleContainerID	Code	ClientSample Label ID / Information	Corrective Action
1	1-6	D10		R8
2	7,8	D22	1st date 9/14/22	R1
<u>JC</u>			2nd date 9/19/22	↓
1	5,6	D2	COC also requests JPS/JPS - no dup w COC label	R1

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

NOTES/OBSERVATIONS:

SAMPLE MATRIX IS DRINKING WATER? YES NO

LEGEND:

- Code Description-Sample Management
- D1 Analysis is not indicated in _____
- D2 Analysis mismatch COC vs label
- D3 Sample ID mismatch COC vs label
- D4 Sample ID is not indicated in _____
- D5 Container -(improper) [leaking] [broken]
- D6 Date/Time is not indicated in _____
- D7 Date/Time mismatch COC vs label
- D8 Sample listed in COC is not received
- D9 Sample received is not listed in COC
- D10 No initial date on corrections in COC/label
- D11 Container count mismatch COC vs received
- D12 Container size mismatch COC vs received

- Code Description-Sample Management
- D13 Out of Holding Time
- D14 Bubble is >6mm
- D15 No trip blank in cooler
- D16 Preservation not indicated in _____
- D17 Preservation mismatch COC vs label
- D18 Insufficient chemical preservative
- D19 Insufficient Sample
- D20 No filtration info for dissolved analysis
- D21 No sample for moisture determination
- D22 2 dates
- D23 _____
- D24 _____

Continue to next page.

- Code Description-Sample Management
- R1 Proceed as indicated in COC Label
- R2 Refer to attached instruction
- R3 Cancel the analysis
- R4 Use vial with smallest bubble first
- R5 Log-in with latest sampling date and time+1 min
- R6 Adjust pH as necessary
- R7 Filter and preserved as necessary
- R8 Informed client
- R9 _____
- R10 _____
- R11 _____
- R12 _____

REVIEWS:

Sample Labeling JHOWIN RAMORA
 Date 9/22/22

SRF [Signature]
 Date 9/22/22

PM [Signature]
 Date 9/26/22

REPORT ID: 221269



weekly Palo Rojo - EEA J# 21454 sampled 09/19/22 1010

Frank, Debbie <Debbie.Frank@et.eurofinsus.com>

Fri 9/23/2022 3:32 PM

To: Richard Beauvil <RBeauvil@emaxlabs.com>; Arada, Rachele <Rachele.Arada@et.eurofinsus.com>
Cc: Dean, Robert <Robert.Dean@et.eurofinsus.com>; Do, Michelle <Michelle.Do@et.eurofinsus.com>; Eaton - Monrovia Sub Contract <Eaton-MonroviaSubContract@et.eurofinsus.com>

Hi Richard

re: HALAWA WELLS P1 (331-023-WL065) sampled 9/19/22

JP5 and JP8 are not needed. Please cancel.

Sincerely,

Debbie Frank

EMERITUS Senior Project Manager

stay healthy and stay free!

Eurofins Eaton Analytical, LLC. (EEA-Monrovia, CA, USA)

750 Royal Oaks Drive, Suite 100

Monrovia, CA, USA 91016

Mobile: +1 310 918 4308

Website: <http://www.eurofinsus.com/Eaton>

Email: Debbie.Frank@et.eurofinsus.com

RETIRING

BUSINESS DAYS

The receiving department is open M-F 8:00 to 4:00 and Saturday mornings for FedEx and UPS deliveries. EEA does not have analysis available on the Weekends. Please contact your ASM, to coordinate RUSH Weekend Testing, if needed.

The information transmitted is intended only for the person or entity to which it is addressed and may contain confidential and/or privileged material. Any review, retransmission, dissemination or other use of, or taking of any action in reliance upon this information by persons or entities other than the intended recipient is prohibited. If you receive this in error, please contact the sender and delete the material from any computer. Email transmission cannot be guaranteed to be secure or error free as information could be intercepted, corrupted, lost, destroyed, arrive late or incomplete. The sender therefore is in no way liable for any errors or omissions in the content of this message which may arise as a result of email transmission. If verification is required, please request a hard copy. We take reasonable precautions to ensure our emails are free from viruses. You need, however, to verify that this email and any attachments are free of viruses, as we can take no responsibility for any computer viruses, which might be transferred by way of this email. We may monitor all email communication through our networks. If you contact us by email, we may store your name and address to facilitate communication.

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

380-21454

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

SDG#: 22I269



CASE NARRATIVE

Client : EUROFINS EATON ANALYTICAL

Project: 380-21454

SDG : 22I269

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

A total of two(2) water samples were received on 09/22/22 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. VG39I16B - 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. VG39I16L/VG39I16C 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 I268-01M/I268-01S. Refer to Matrix QC summary form for details.

Surrogate

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

Sample Analysis

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

LAB CHRONICLE
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client : EUROFINS EATON ANALYTICAL
 Project : 380-21454
 SDG NO. : 221269
 Instrument ID : GCT039

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
									WATER
MBLK1W	VG39116B	1	NA	09/22/2217:49	09/22/2217:49	E122005A	E122003A	22VG39116	Method Blank
LCS1W	VG39116L	1	NA	09/22/2218:27	09/22/2218:27	E122006A	E122003A	22VG39116	Lab Control Sample (LCS)
LCD1W	VG39116C	1	NA	09/22/2219:05	09/22/2219:05	E122007A	E122003A	22VG39116	LCS Duplicate
380-21454-1	1269-01	1	NA	09/23/2201:26	09/23/2201:26	E122017A	E122014A	22VG39116	Field Sample
380-21454-2	1269-02	1	NA	09/23/2202:04	09/23/2202:04	E122018A	E122014A	22VG39116	Field Sample

FN - Filename
 % Moist - Percent Moisture



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SAMPLE RESULTS

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

```

=====
Client      : EUROFINS EATON ANALYTICAL   Date Collected: 09/19/22 10:10
Project     : 380-21454                   Date Received: 09/22/22
Batch No.   : 221269                       Date Extracted: 09/23/22 01:26
Sample ID   : 380-21454-1                 Date Analyzed: 09/23/22 01:26
Lab Samp ID: I269-01                       Dilution Factor: 1
Lab File ID: E122017A                       Matrix: WATER
Ext Btch ID: 22VG39116                     % Moisture: NA
Calib. Ref.: E122014A                       Instrument ID: 39
=====

```

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

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromofluorobenzene	0.0342	0.0400	86	60-140

Notes:

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

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

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

```

=====
Client      : EUROFINS EATON ANALYTICAL    Date Collected: 09/19/22 10:10
Project     : 380-21454                    Date Received: 09/22/22
Batch No.   : 221269                       Date Extracted: 09/23/22 02:04
Sample ID   : 380-21454-2                 Date Analyzed: 09/23/22 02:04
Lab Samp ID: I269-02                      Dilution Factor: 1
Lab File ID: EI22018A                     Matrix: WATER
Ext Btch ID: 22VG39I16                   % Moisture: NA
Calib. Ref.: EI22014A                    Instrument ID: 39
=====

```

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	0.020	0.010
SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY
Bromofluorobenzene	0.0347	0.0400	87
			QC LIMIT
			60-140

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

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

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QC SUMMARIES

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

```

=====
Client      : EUROFINS EATON ANALYTICAL   Date Collected: 09/22/22 17:49
Project     : 380-21454                   Date Received: 09/22/22
Batch No.   : 221269                       Date Extracted: 09/22/22 17:49
Sample ID   : MBLK1W                       Date Analyzed: 09/22/22 17:49
Lab Samp ID: VG39116B                     Dilution Factor: 1
Lab File ID: E122005A                      Matrix: WATER
Ext Btch ID: 22VG39116                    % Moisture: NA
Calib. Ref.: E122003A                     Instrument ID: 39
=====

```

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

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromofluorobenzene	0.0336	0.0400	84	60-140

Notes:

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

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

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL
PROJECT : 380-21454
BATCH NO. : 221269
METHOD : 5030B/8015B

```

=====
MATRIX      : WATER                               % MOISTURE:NA
DILUTION FACTOR: 1                               1
SAMPLE ID   : MBLK1W                             LCS1W
LAB SAMPLE ID : VG39116B                         VG39116L
LAB FILE ID  : EI22005A                         EI22006A
DATE PREPARED : 09/22/22 17:49                 09/22/22 18:27
DATE ANALYZED : 09/22/22 17:49                 09/22/22 18:27
PREP BATCH   : 22VG39116                       22VG39116
CALIBRATION REF: EI22003A                      EI22003A
=====
  
```

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	0.420	84	0.500	0.424	85	1	60-130	30

SURROGATE PARAMETER	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	QCLimit (%)
Bromofluorobenzene	0.0400	0.0429	107	0.0400	0.0418	105	70-130

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

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL
PROJECT : 380-21464
BATCH NO. : 221268
METHOD : 5030B/8015B

```

=====
MATRIX      : WATER                               % MOISTURE:NA
DILUTION FACTOR: 1                               1
SAMPLE ID   : 380-21464-1                         380-21464-1MS
LAB SAMPLE ID : I268-01                           I268-01M
LAB FILE ID  : E122008A                           E122009A
DATE PREPARED : 09/22/22 19:43                     09/22/22 20:21
DATE ANALYZED : 09/22/22 19:43                     09/22/22 20:59
PREP BATCH   : 22VG39I16                           22VG39I16
CALIBRATION REF: E122003A                           E122003A
  
```

ACCESSION:

PARAMETERS	PSResult (mg/L)	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	RPD (%)	QLLimit (%)	MaxRPD (%)
Gasoline	ND	0.500	0.480	96	0.500	0.460	92	4	50-130	30

SURROGATE PARAMETER	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	QLLimit (%)
Bromofluorobenzene	0.0400	0.0464	116	0.0400	0.0460	115	60-140

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

LABORATORY REPORT FOR

EUROFINS EATON ANALYTICAL

380-21454

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

SDG#: 22I269



CASE NARRATIVE

Client : EUROFINS EATON ANALYTICAL

Project: 380-21454

SDG : 22I269

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

One(1) water sample was received on 09/22/22 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. DSJ003WB - 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. DSJ003WL/DSJ003WC 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. Diesel was within MS QC limits in 22I333-01M/22I333-01S. Refer to Matrix QC summary form for details.

Surrogate

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

Sample Analysis

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

LAB CHRONICLE
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : EUROFINS EATON ANALYTICAL
Project : 380-21454

SDG NO. : 221269
Instrument ID : D5

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
									WATER
MBLK1W	DSJ003WB	1	NA	10/03/2212:30	10/01/2215:45	LJ03007A	LJ03003A	22DSJ003W	Method Blank
LCS1W	DSJ003WL	1	NA	10/03/2212:49	10/01/2215:45	LJ03008A	LJ03003A	22DSJ003W	Lab Control Sample (LCS)
LCD1W	DSJ003WC	1	NA	10/03/2213:07	10/01/2215:45	LJ03009A	LJ03003A	22DSJ003W	LCS Duplicate
380-21454-1	1269-01	1	NA	10/03/2214:21	10/01/2215:45	LJ03013A	LJ03003A	22DSJ003W	Field Sample

FN - Filename
% Moist - Percent Moisture



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SAMPLE RESULTS

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

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=====
Client      : EUROFINS EATON ANALYTICAL   Date Collected: 09/19/22 10:10
Project     : 380-21454                   Date Received: 09/22/22
Batch No.   : 221269                       Date Extracted: 10/01/22 15:45
Sample ID   : 380-21454-1                 Date Analyzed: 10/03/22 14:21
Lab Samp ID: 221269-01                   Dilution Factor: 1
Lab File ID: LJO3013A                     Matrix: WATER
Ext Btch ID: 22DSJ003W                    % Moisture: NA
Calib. Ref.: LJO3003A                     Instrument ID: D5
=====

```

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)	
Diesel	ND	0.027	0.014	
Motor Oil	ND	0.054	0.027	
SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.359	0.540	67	60-130
Hexacosane	0.109	0.135	81	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 : 930ml Final Volume : 5ml
Prepared by : JMuert Analyzed by : SDeeso

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QC SUMMARIES

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

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=====
Client      : EUROFINS EATON ANALYTICAL   Date Collected: 10/01/22 15:45
Project     : 380-21454                   Date Received: 10/01/22
Batch No.   : 221269                       Date Extracted: 10/01/22 15:45
Sample ID   : MBLK1W                       Date Analyzed: 10/03/22 12:30
Lab Samp ID: DSJ003WB                      Dilution Factor: 1
Lab File ID: LJ03007A                      Matrix: WATER
Ext Btch ID: 22DSJ003W                    % Moisture: NA
Calib. Ref.: LJ03003A                    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	0.362	0.500	72	60-130
Hexacosane	0.101	0.125	80	60-130

Notes:

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

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

Sample Amount : 1000ml Final Volume : 5ml
Prepared by : JMuert Analyzed by : SDeeso

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL
PROJECT : 380-21454
BATCH NO. : 221269
METHOD : 3520C/8015B

```

=====
MATRIX      : WATER                               % MOISTURE:NA
DILUTION FACTOR: 1                               1
SAMPLE ID   : MBLK1W                             LCS1W
LAB SAMPLE ID : DSJ003WB                         DSJ003WL
LAB FILE ID  : LJ03007A                         LJ03008A
DATE PREPARED : 10/01/22 15:45                 10/01/22 15:45
DATE ANALYZED : 10/03/22 12:30                 10/03/22 13:07
PREP BATCH   : 22DSJ003W                       22DSJ003W
CALIBRATION REF: LJ03003A                      LJ03003A
    
```

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	2.47	99	2.50	2.10	84	16	50-130	30

SURROGATE PARAMETERS	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	QCLimit (%)
Bromobenzene	0.500	0.428	86	0.500	0.397	79	60-130
Hexacosane	0.125	0.108	86	0.125	0.0941	75	60-130

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 : 380-22076
BATCH NO. : 221333
METHOD : 3520C/8015B

```

=====
MATRIX : WATER % MOISTURE:NA
DILUTION FACTOR: 1 1
SAMPLE ID : 380-22076-1 380-22076-1MS 380-22076-1MSD
LAB SAMPLE ID : 221333-01 221333-01M 221333-01S
LAB FILE ID : LJ03097A LJ03020A LJ03021A
DATE PREPARED : 10/01/22 15:45 10/01/22 15:45 10/01/22 15:45
DATE ANALYZED : 10/04/22 16:12 10/03/22 16:31 10/03/22 16:49
PREP BATCH : 22DSJ003W 22DSJ003W 22DSJ003W
CALIBRATION REF: LJ03089A LJ03003A LJ03003A
    
```

ACCESSION:

PARAMETERS	PSResult (mg/L)	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Diesel	ND	2.60	2.47	95	2.78	2.37	85	4	50-130	30

SURROGATE PARAMETERS	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	QCLimit (%)
Bromobenzene	0.520	0.383	74	0.555	0.449	81	60-130
Hexacosane	0.130	0.110	85	0.139	0.109	79	60-130

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

September 30, 2022

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

Project Name: RED-HILL Project # 38001111 Job # 380-21454-1
Physis Project ID: 1407003-299

Dear Debbie,


Enclosed are the analytical results for the sample submitted to PHYSIS Environmental Laboratories, Inc. (PHYSIS) on 9/21/2022. 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: 1407003-299

RED-HILL Project # 38001111 Job # 380-21454-1

Total Samples: 1

PHYSIS ID	Sample ID	Description	Date	Time	Matrix	Sample Type
100206	HALAWA WELLS PUMP 1	331-023 (380-21454-1)	9/19/2022	10:10	Samplewater	Not Specified

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ABBREVIATIONS and ACRONYMS

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

QUALITY ASSURANCE SUMMARY

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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PHYSIS QUALIFIER CODES

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

CASE NARRATIVE

QUALIFIER NOTES

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

ND

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

ANALYTICAL REPOR

TERRA AURA
ENVIRONMENTAL LABORATORIES, INC.

Innovative Solutions for Nature

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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: 100206-R1	HALAWA WELLS PUMP 1 331-023 (3 Matrix: Samplewater)						Sampled:	19-Sep-22 10:10	Received:	21-Sep-22	
Disalicylidenepropanediamine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-38124	22-Sep-22	27-Sep-22



Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Sample ID: 100206-R1	HALAWA WELLS PUMP 1 331-023 (3 Matrix: Samplewater)						Sampled:	19-Sep-22 10:10	Received:	21-Sep-22	
(d10-Acenaphthene)	EPA 625.1	% Recovery	69	1			Total		O-38124	22-Sep-22	27-Sep-22
(d10-Phenanthrene)	EPA 625.1	% Recovery	92	1			Total		O-38124	22-Sep-22	27-Sep-22
(d12-Chrysene)	EPA 625.1	% Recovery	93	1			Total		O-38124	22-Sep-22	27-Sep-22
(d12-Perylene)	EPA 625.1	% Recovery	77	1			Total		O-38124	22-Sep-22	27-Sep-22
(d8-Naphthalene)	EPA 625.1	% Recovery	73	1			Total		O-38124	22-Sep-22	27-Sep-22
1-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38124	22-Sep-22	27-Sep-22
1-Methylphenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38124	22-Sep-22	27-Sep-22
2,3,5-Trimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38124	22-Sep-22	27-Sep-22
2,6-Dimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38124	22-Sep-22	27-Sep-22
2-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38124	22-Sep-22	27-Sep-22
Acenaphthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38124	22-Sep-22	27-Sep-22
Acenaphthylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38124	22-Sep-22	27-Sep-22
Anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38124	22-Sep-22	27-Sep-22
Benz[a]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38124	22-Sep-22	27-Sep-22
Benzo[a]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38124	22-Sep-22	27-Sep-22
Benzo[b]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38124	22-Sep-22	27-Sep-22
Benzo[e]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38124	22-Sep-22	27-Sep-22
Benzo[g,h,i]perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38124	22-Sep-22	27-Sep-22
Benzo[k]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38124	22-Sep-22	27-Sep-22
Biphenyl	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38124	22-Sep-22	27-Sep-22
Chrysene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38124	22-Sep-22	27-Sep-22
D benz[a,h]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38124	22-Sep-22	27-Sep-22
D benzo[a,l]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38124	22-Sep-22	27-Sep-22
D benzothiophene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38124	22-Sep-22	27-Sep-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-38124	22-Sep-22	27-Sep-22
Fluorene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38124	22-Sep-22	27-Sep-22
Indeno[1,2,3-cd]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38124	22-Sep-22	27-Sep-22
Naphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38124	22-Sep-22	27-Sep-22
Perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38124	22-Sep-22	27-Sep-22
Phenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38124	22-Sep-22	27-Sep-22
Pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38124	22-Sep-22	27-Sep-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: 100205-B1		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:		Received:			
		Method: EPA 625.1			Batch ID: O-38124			Prepared: 20-Sep-22		Analyzed: 27-Sep-22			
Disalicylideneprapanediamin	Total	ND	1	0.05	0.1	µg/L							
Sample ID: 100205-BS1		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:		Received:			
		Method: EPA 625.1			Batch ID: O-38124			Prepared: 20-Sep-22		Analyzed: 27-Sep-22			
Disalicylideneprapanediamin	Total	36	1	0.05	0.1	µg/L	50	0	72	50 - 150%	PASS		
Sample ID: 100205-BS2		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:		Received:			
		Method: EPA 625.1			Batch ID: O-38124			Prepared: 20-Sep-22		Analyzed: 27-Sep-22			
Disalicylideneprapanediamin	Total	45.5	1	0.05	0.1	µg/L	50	0	91	50 - 150%	PASS	23	30 PASS

Polynuclear Aromatic Hydrocarbons

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY	PRECISION	QA CODEc
							LEVEL	RESULT	%	LIMITS	%
Sample ID: 100205-B1		QAQC Procedural Blank			Matrix: BlankMatrix		Sampled:		Received:		
		Method: EPA 625.1			Batch ID: O-38124		Prepared: 20-Sep-22		Analyzed: 27-Sep-22		
(d10-Acenaphthene)	Total	87	1			% Recovery	100	87	65 - 113%	PASS	
(d10-Phenanthrene)	Total	97	1			% Recovery	100	97	80 - 111%	PASS	
(d12-Chrysene)	Total	102	1			% Recovery	100	102	60 - 139%	PASS	
(d12-Perylene)	Total	88	1			% Recovery	100	88	36 - 161%	PASS	
(d8-Naphthalene)	Total	75	1			% Recovery	100	75	44 - 119%	PASS	
1-Methylnaphthalene	Total	ND	1	0.001	0.005	µg/L					
1-Methylphenanthrene	Total	ND	1	0.001	0.005	µg/L					
2,3,5-Trimethylnaphthalene	Total	ND	1	0.001	0.005	µg/L					
2,6-Dimethylnaphthalene	Total	ND	1	0.001	0.005	µg/L					
2-Methylnaphthalene	Total	ND	1	0.001	0.005	µg/L					
Acenaphthene	Total	ND	1	0.001	0.005	µg/L					
Acenaphthylene	Total	ND	1	0.001	0.005	µg/L					
Anthracene	Total	ND	1	0.001	0.005	µg/L					
Benz[a]anthracene	Total	ND	1	0.001	0.005	µg/L					
Benzo[a]pyrene	Total	ND	1	0.001	0.005	µg/L					
Benzo[b]fluoranthene	Total	ND	1	0.001	0.005	µg/L					
Benzo[e]pyrene	Total	ND	1	0.001	0.005	µg/L					
Benzo[g,h,i]perylene	Total	ND	1	0.001	0.005	µg/L					
Benzo[k]fluoranthene	Total	ND	1	0.001	0.005	µg/L					
Biphenyl	Total	ND	1	0.001	0.005	µg/L					
Chrysene	Total	ND	1	0.001	0.005	µg/L					
Dibenz[a,h]anthracene	Total	ND	1	0.001	0.005	µg/L					
Dibenzo[a,l]pyrene	Total	ND	1	0.001	0.005	µg/L					
Dibenzothiophene	Total	ND	1	0.001	0.005	µg/L					

Polynuclear Aromatic Hydrocarbons

QUALITY CONTROL REPORT

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



Polynuclear Aromatic Hydrocarbons

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY		PRECISION	QA CODE
							LEVEL	RESULT	%	LIMITS	%	LIMITS
Sample ID: 100205-BS1		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:		Received:		
Method: EPA 625.1		Batch ID: O-38124			Prepared: 20-Sep-22		Analyzed: 27-Sep-22					
(d10-Acenaphthene)	Total	71	1			% Recovery	100	0	71	65 - 113%	PASS	
(d10-Phenanthrene)	Total	101	1			% Recovery	100	0	101	80 - 111%	PASS	
(d12-Chrysene)	Total	103	1			% Recovery	100	0	103	60 - 139%	PASS	
(d12-Perylene)	Total	101	1			% Recovery	100	0	101	36 - 161%	PASS	
(d8-Naphthalene)	Total	87	1			% Recovery	100	0	87	44 - 119%	PASS	
1-Methylnaphthalene	Total	0.449	1	0.001	0.005	µg/L	0.5	0	90	49 - 117%	PASS	
1-Methylphenanthrene	Total	0.522	1	0.001	0.005	µg/L	0.5	0	104	66 - 127%	PASS	
2,3,5-Trimethylnaphthalene	Total	0.351	1	0.001	0.005	µg/L	0.5	0	70	57 - 120%	PASS	
2,6-Dimethylnaphthalene	Total	0.39	1	0.001	0.005	µg/L	0.5	0	78	54 - 117%	PASS	
2-Methylnaphthalene	Total	0.447	1	0.001	0.005	µg/L	0.5	0	89	47 - 130%	PASS	
Acenaphthene	Total	0.332	1	0.001	0.005	µg/L	0.5	0	66	53 - 131%	PASS	
Acenaphthylene	Total	0.33	1	0.001	0.005	µg/L	0.5	0	66	43 - 140%	PASS	
Anthracene	Total	0.462	1	0.001	0.005	µg/L	0.5	0	92	58 - 135%	PASS	
Benz[a]anthracene	Total	0.438	1	0.001	0.005	µg/L	0.5	0	88	55 - 145%	PASS	
Benzo[a]pyrene	Total	0.431	1	0.001	0.005	µg/L	0.5	0	86	51 - 143%	PASS	
Benzo[b]fluoranthene	Total	0.539	1	0.001	0.005	µg/L	0.5	0	108	46 - 165%	PASS	
Benzo[e]pyrene	Total	0.487	1	0.001	0.005	µg/L	0.5	0	97	42 - 152%	PASS	
Benzo[g,h,i]perylene	Total	0.481	1	0.001	0.005	µg/L	0.5	0	96	63 - 133%	PASS	
Benzo[k]fluoranthene	Total	0.483	1	0.001	0.005	µg/L	0.5	0	97	56 - 145%	PASS	
Biphenyl	Total	0.46	1	0.001	0.005	µg/L	0.5	0	92	56 - 119%	PASS	
Chrysene	Total	0.45	1	0.001	0.005	µg/L	0.5	0	90	56 - 141%	PASS	
Dibenz[a,h]anthracene	Total	0.486	1	0.001	0.005	µg/L	0.5	0	97	55 - 150%	PASS	
Dibenzo[a,l]pyrene	Total	0.399	1	0.001	0.005	µg/L	0.5	0	80	50 - 150%	PASS	
Dibenzothiophene	Total	0.47	1	0.001	0.005	µg/L	0.5	0	94	75 - 113%	PASS	

Polynuclear Aromatic Hydrocarbons

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY		PRECISION		QA CODE _c
							LEVEL	RESULT	%	LIMITS	%	LIMITS	
Fluoranthene	Total	0.473	1	0.001	0.005	µg/L	0.5	0	95	60 - 146%	PASS		
Fluorene	Total	0.371	1	0.001	0.005	µg/L	0.5	0	74	58 - 131%	PASS		
Indeno[1,2,3-cd]pyrene	Total	0.508	1	0.001	0.005	µg/L	0.5	0	102	50 - 151%	PASS		
Naphthalene	Total	0.395	1	0.001	0.005	µg/L	0.5	0	79	41 - 126%	PASS		
Perylene	Total	0.463	1	0.001	0.005	µg/L	0.5	0	93	48 - 141%	PASS		
Phenanthrene	Total	0.468	1	0.001	0.005	µg/L	0.5	0	94	67 - 127%	PASS		
Pyrene	Total	0.479	1	0.001	0.005	µg/L	0.5	0	96	54 - 156%	PASS		

Polynuclear Aromatic Hydrocarbons

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY		PRECISION		QA CODE _c		
							LEVEL	RESULT	%	LIMITS	%	LIMITS			
Sample ID: 100205-BS2		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:			Received:				
		Method: EPA 625.1			Batch ID: O-38124			Prepared: 20-Sep-22			Analyzed: 27-Sep-22				
(d10-Acenaphthene)	Total	89	1				% Recovery	100	0	89	65 - 113%	PASS	22	30	PASS
(d10-Phenanthrene)	Total	101	1				% Recovery	100	0	101	80 - 111%	PASS	0	30	PASS
(d12-Chrysene)	Total	104	1				% Recovery	100	0	104	60 - 139%	PASS	1	30	PASS
(d12-Perylene)	Total	103	1				% Recovery	100	0	103	36 - 161%	PASS	2	30	PASS
(d8-Naphthalene)	Total	80	1				% Recovery	100	0	80	44 - 119%	PASS	8	30	PASS
1-Methylnaphthalene	Total	0.397	1	0.001	0.005	µg/L		0.5	0	79	49 - 117%	PASS	13	30	PASS
1-Methylphenanthrene	Total	0.619	1	0.001	0.005	µg/L		0.5	0	124	66 - 127%	PASS	18	30	PASS
2,3,5-Trimethylnaphthalene	Total	0.444	1	0.001	0.005	µg/L		0.5	0	89	57 - 120%	PASS	24	30	PASS
2,6-Dimethylnaphthalene	Total	0.431	1	0.001	0.005	µg/L		0.5	0	86	54 - 117%	PASS	10	30	PASS
2-Methylnaphthalene	Total	0.399	1	0.001	0.005	µg/L		0.5	0	80	47 - 130%	PASS	11	30	PASS
Acenaphthene	Total	0.425	1	0.001	0.005	µg/L		0.5	0	85	53 - 131%	PASS	25	30	PASS
Acenaphthylene	Total	0.427	1	0.001	0.005	µg/L		0.5	0	85	43 - 140%	PASS	25	30	PASS
Anthracene	Total	0.458	1	0.001	0.005	µg/L		0.5	0	92	58 - 135%	PASS	0	30	PASS
Benz[a]anthracene	Total	0.462	1	0.001	0.005	µg/L		0.5	0	92	55 - 145%	PASS	4	30	PASS
Benzo[a]pyrene	Total	0.479	1	0.001	0.005	µg/L		0.5	0	96	51 - 143%	PASS	11	30	PASS
Benzo[b]fluoranthene	Total	0.561	1	0.001	0.005	µg/L		0.5	0	112	46 - 165%	PASS	4	30	PASS
Benzo[e]pyrene	Total	0.523	1	0.001	0.005	µg/L		0.5	0	105	42 - 152%	PASS	8	30	PASS
Benzo[g,h,i]perylene	Total	0.485	1	0.001	0.005	µg/L		0.5	0	97	63 - 133%	PASS	1	30	PASS
Benzo[k]fluoranthene	Total	0.403	1	0.001	0.005	µg/L		0.5	0	81	56 - 145%	PASS	18	30	PASS
Biphenyl	Total	0.417	1	0.001	0.005	µg/L		0.5	0	83	56 - 119%	PASS	10	30	PASS
Chrysene	Total	0.452	1	0.001	0.005	µg/L		0.5	0	90	56 - 141%	PASS	0	30	PASS
Dibenz[a,h]anthracene	Total	0.527	1	0.001	0.005	µg/L		0.5	0	105	55 - 150%	PASS	8	30	PASS
Dibenzo[a,l]pyrene	Total	0.423	1	0.001	0.005	µg/L		0.5	0	85	50 - 150%	PASS	6	30	PASS
Dibenzothiophene	Total	0.472	1	0.001	0.005	µg/L		0.5	0	94	75 - 113%	PASS	0	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	0.585	1	0.001	0.005	µg/L	0.5	0	117	60 - 146%	PASS	21	30	PASS
Fluorene	Total	0.441	1	0.001	0.005	µg/L	0.5	0	88	58 - 131%	PASS	17	30	PASS
Indeno[1,2,3-cd]pyrene	Total	0.564	1	0.001	0.005	µg/L	0.5	0	113	50 - 151%	PASS	10	30	PASS
Naphthalene	Total	0.38	1	0.001	0.005	µg/L	0.5	0	76	41 - 126%	PASS	4	30	PASS
Perylene	Total	0.495	1	0.001	0.005	µg/L	0.5	0	99	48 - 141%	PASS	6	30	PASS
Phenanthrene	Total	0.46	1	0.001	0.005	µg/L	0.5	0	92	67 - 127%	PASS	2	30	PASS
Pyrene	Total	0.591	1	0.001	0.005	µg/L	0.5	0	118	54 - 156%	PASS	21	30	PASS

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PHYSIS

TENTATIVELY

IDENTIFIED COMPOUNDS

ENVIRONMENTAL LABORATORIES, INC.

Innovative Solutions for Nature

Sample ID: 100206

RT	Area Pct	Concentration (ng/L)	Library/ID	Cas Number	Match Qual
32.4440	5.7434	1111	Anthracene-D10-	1719-06-8	97
64.3869	3.7150	719	1,3-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester	137-89-3	97
24.9398	2.5958	502	Diethyl Phthalate	84-66-2	99
17.5658	0.5677	110	Propanoic acid, 2-methyl-, 3-hydroxy-2,2,4-trimethylpentyl ester	77-68-9	98

Concentration estimated using the response for Anthracene-d10

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Sample ID: Lab Blank Batch O-38124

RT	Area Pct	Concentration (ng/L)	Library/ID	Cas Number	Match Qual
33.4477	0.2438	1111	Anthracene-D10	1517-22-2	89
			No TICs were detected in this sample.		

Concentration estimated using the response for Anthracene-d10

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PERFORMANCE CHAIN OF CUSTODY

TERRA ENVIRONMENTAL LABORATORIES, INC. AURA

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Project Iteration ID: 1407003-299
 Client Name: Eurofins Eaton Analytical
 Project Name: RED-HILL Project # 38001111 Job # 380-21454-1
 COC Page Number: 2 of 2
 Bottle Label Color: NA

Sample Receipt Summary

Receiving Info

1. Initials Received By: yl
2. Date Received: 9/21/22
3. Time Received: 1500
4. Client Name: EUROFINS
5. Courier Information: (Please circle)
 - Client
 - UPS
 - Area Fast
 - DRS
 - FedEx
 - GSO/GLS
 - Ontrac
 - PAM5
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): 5.0 Used I/R Thermometer # 1-2

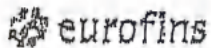
Inspection Info

1. Initials Inspected By: RGH

Sample Integrity Upon Receipt:

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

Notes:



Eaton Analytical

INTERNAL CHAIN OF CUSTODY RECORD

EEA Folder Number:

SAMPLE TEMP RECEIVED:

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

SAMPLES REC'D DAY OF COLLECTION? Yes / No

IR Gun ID = 6304 (Observation = 3.1 °C) (Corr. Factor 0.1 °C) (Final = 3.0 °C)

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

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

Compliance Acceptance Criteria:

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

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

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

4 Dioxin (1813 or 2,3,7,8 TCDD): must be between 0-4 °C, not frozen (if received after 24 hrs of sample collection)

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

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

7) VOA and Radon Headspace:

No Samples with Headspace:

Samples with Headspace (see below):

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

Exempt from headspace concerns: Methods 815.4, HAA (825.1, 825.2), 505, SPME, @OH, 532LCMS, 555, 535, Anstoxin, LCMS methods using 40 ml vials, international clients:

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

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

SIGNATURE	PRINT NAME	COMPANY/TITLE	DATE	TIME
RECEIVED BY: <u>[Signature]</u>	<u>Mark Urcutik</u>	Eurofins Eaton Analytical	<u>4/26/22</u>	<u>1000</u>
SIGNATURE	PRINT NAME	COMPANY/TITLE	DATE	TIME
SAMPLES CHECKED AGAINST COC BY: _____	_____	Eurofins Eaton Analytical	_____	_____

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

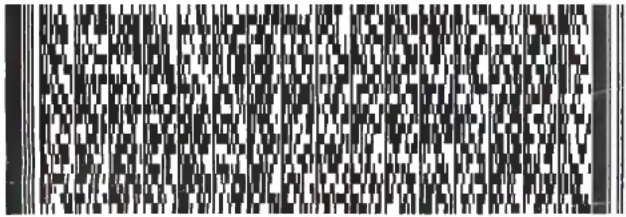
SHIP DATE: 19SEP22
ACTWGT: 75.00 LB
CAD: 100205419/INET4530

BILL RECEIPT

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

581J1E08C0FE2D

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



FedEx Express



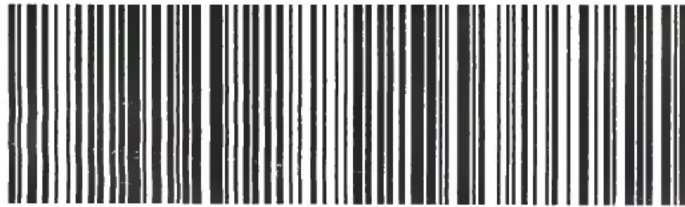
JZ2022081201ur

TUE - 20 SEP 10:30A
PRIORITY OVERNIGHT

TRK# 7779 7506 3626
0201

WZ WHPA

91016
CA-US BUR



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Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-21454-1

Login Number: 21454

List Source: Eurofins Eaton Monrovia

List Number: 1

Creator: Elyas, Matthew

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	