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# ANALYTICAL REPORT

## PREPARED FOR

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

Generated 2/14/2023 1:52:42 PM

## JOB DESCRIPTION

RED-HILL  
RUSH Weekly Red Hill

## JOB NUMBER

380-32804-1

# Eurofins Eaton Monrovia

## Job Notes

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

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

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

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

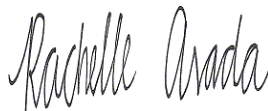
This report shall not be reproduced except in full, without the written approval of the laboratory.

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

## Compliance Statement

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

## Authorization



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Authorized for release by  
Rachelle Arada, Manager of Project Management  
[Rachelle.Arada@et.eurofinsus.com](mailto:Rachelle.Arada@et.eurofinsus.com)  
(626)386-1106



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# Definitions/Glossary

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

Job ID: 380-32804-1

## Qualifiers

### GC/MS Semi VOA

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

### Subcontract

Qualifier	Qualifier Description
U	This analyte was not detected.

## Glossary

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

# Case Narrative

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

Job ID: 380-32804-1

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## Job ID: 380-32804-1

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### Laboratory: Eurofins Eaton Monrovia

#### Narrative

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#### Job Narrative 380-32804-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 12/29/2022 10:10 AM. Unless otherwise noted below, the samples arrived in good condition, as where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.6° C.

#### GC/MS Semi VOA

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

#### Subcontract non-Sister

See attached subcontract report.

#### Organic Prep

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

#### Subcontract Work

Methods 8015 Gas (Purgeable) LL (EAL), 8015 LL DRO/MRO/JP5/JP8: 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: 380-32804-1

**Client Sample ID: MOANALUA WELLS**  
**PWSID Number: HI0000331**

**Lab Sample ID: 380-32804-1**

No Detections.

**Client Sample ID: TB MOANALUA WELLS**

**Lab Sample ID: 380-32804-2**

No Detections.

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This Detection Summary does not include radiochemical test results.

Eurofins Eaton Monrovia

# Client Sample Results

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

Job ID: 380-32804-1

**Client Sample ID: MOANALUA WELLS**

**Lab Sample ID: 380-32804-1**

**Date Collected: 12/27/22 11:25**

**Matrix: Drinking Water**

**Date Received: 12/29/22 10:10**

**PWSID Number: HI0000331**

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		0.10	ug/L		01/03/23 07:51	01/04/23 14:44	1
2,4'-DDE	ND		0.10	ug/L		01/03/23 07:51	01/04/23 14:44	1
2,4'-DDT	ND		0.10	ug/L		01/03/23 07:51	01/04/23 14:44	1
2,4-Dinitrotoluene	ND		0.10	ug/L		01/03/23 07:51	01/04/23 14:44	1
2,6-Dinitrotoluene	ND		0.10	ug/L		01/03/23 07:51	01/04/23 14:44	1
4,4'-DDD	ND		0.10	ug/L		01/03/23 07:51	01/04/23 14:44	1
4,4'-DDE	ND		0.10	ug/L		01/03/23 07:51	01/04/23 14:44	1
4,4'-DDT	ND		0.10	ug/L		01/03/23 07:51	01/04/23 14:44	1
Acenaphthene	ND		0.10	ug/L		01/03/23 07:51	01/04/23 14:44	1
Acenaphthylene	ND		0.10	ug/L		01/03/23 07:51	01/04/23 14:44	1
Acetochlor	ND		0.10	ug/L		01/03/23 07:51	01/04/23 14:44	1
Alachlor	ND		0.050	ug/L		01/03/23 07:51	01/04/23 14:44	1
alpha-BHC	ND		0.10	ug/L		01/03/23 07:51	01/04/23 14:44	1
alpha-Chlordane	ND		0.050	ug/L		01/03/23 07:51	01/04/23 14:44	1
Anthracene	ND		0.020	ug/L		01/03/23 07:51	01/04/23 14:44	1
Atrazine	ND		0.050	ug/L		01/03/23 07:51	01/04/23 14:44	1
Benz(a)anthracene	ND		0.050	ug/L		01/03/23 07:51	01/04/23 14:44	1
Benzo[a]pyrene	ND		0.020	ug/L		01/03/23 07:51	01/04/23 14:44	1
Benzo[b]fluoranthene	ND		0.020	ug/L		01/03/23 07:51	01/04/23 14:44	1
Benzo[g,h,i]perylene	ND		0.050	ug/L		01/03/23 07:51	01/04/23 14:44	1
Benzo[k]fluoranthene	ND		0.020	ug/L		01/03/23 07:51	01/04/23 14:44	1
beta-BHC	ND		0.10	ug/L		01/03/23 07:51	01/04/23 14:44	1
Bromacil	ND		0.10	ug/L		01/03/23 07:51	01/04/23 14:44	1
Butachlor	ND		0.050	ug/L		01/03/23 07:51	01/04/23 14:44	1
Butylbenzylphthalate	ND		0.50	ug/L		01/03/23 07:51	01/04/23 14:44	1
Caffeine	ND		0.050	ug/L		01/03/23 07:51	01/04/23 14:44	1
Chlorobenzilate	ND		0.10	ug/L		01/03/23 07:51	01/04/23 14:44	1
Chloroneb	ND		0.10	ug/L		01/03/23 07:51	01/04/23 14:44	1
Chlorothalonil (Draconil, Bravo)	ND	^3+	0.10	ug/L		01/03/23 07:51	01/04/23 14:44	1
Chlorpyrifos	ND		0.050	ug/L		01/03/23 07:51	01/04/23 14:44	1
Chrysene	ND		0.020	ug/L		01/03/23 07:51	01/04/23 14:44	1
delta-BHC	ND		0.10	ug/L		01/03/23 07:51	01/04/23 14:44	1
Di(2-ethylhexyl)adipate	ND		0.60	ug/L		01/03/23 07:51	01/04/23 14:44	1
Bis(2-ethylhexyl) phthalate	ND		0.60	ug/L		01/03/23 07:51	01/04/23 14:44	1
Diazinon (Qualitative)	ND		0.10	ug/L		01/03/23 07:51	01/04/23 14:44	1
Dibenz(a,h)anthracene	ND		0.050	ug/L		01/03/23 07:51	01/04/23 14:44	1
Diclorvos (DDVP)	ND		0.050	ug/L		01/03/23 07:51	01/04/23 14:44	1
Dieldrin	ND		0.20	ug/L		01/03/23 07:51	01/04/23 14:44	1
Diethylphthalate	ND		0.50	ug/L		01/03/23 07:51	01/04/23 14:44	1
Dimethoate	ND		0.10	ug/L		01/03/23 07:51	01/04/23 14:44	1
Dimethylphthalate	ND		0.50	ug/L		01/03/23 07:51	01/04/23 14:44	1
Di-n-butyl phthalate	ND		1.0	ug/L		01/03/23 07:51	01/04/23 14:44	1
Di-n-octyl phthalate	ND		0.10	ug/L		01/03/23 07:51	01/04/23 14:44	1
Endosulfan I (Alpha)	ND		0.10	ug/L		01/03/23 07:51	01/04/23 14:44	1
Endosulfan II (Beta)	ND		0.10	ug/L		01/03/23 07:51	01/04/23 14:44	1
Endosulfan sulfate	ND		0.10	ug/L		01/03/23 07:51	01/04/23 14:44	1
Endrin	ND		0.10	ug/L		01/03/23 07:51	01/04/23 14:44	1
Endrin aldehyde	ND		0.10	ug/L		01/03/23 07:51	01/04/23 14:44	1
EPTC	ND		0.10	ug/L		01/03/23 07:51	01/04/23 14:44	1

Eurofins Eaton Monrovia

# Client Sample Results

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

Job ID: 380-32804-1

**Client Sample ID: MOANALUA WELLS**

**Lab Sample ID: 380-32804-1**

**Date Collected: 12/27/22 11:25**

**Matrix: Drinking Water**

**Date Received: 12/29/22 10:10**

**PWSID Number: HI0000331**

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoranthene	ND		0.10	ug/L		01/03/23 07:51	01/04/23 14:44	1
Fluorene	ND		0.050	ug/L		01/03/23 07:51	01/04/23 14:44	1
gamma-Chlordane	ND		0.050	ug/L		01/03/23 07:51	01/04/23 14:44	1
Heptachlor	ND		0.040	ug/L		01/03/23 07:51	01/04/23 14:44	1
Heptachlor epoxide (isomer B)	ND		0.050	ug/L		01/03/23 07:51	01/04/23 14:44	1
Hexachlorobenzene	ND		0.050	ug/L		01/03/23 07:51	01/04/23 14:44	1
Hexachlorocyclopentadiene	ND		0.050	ug/L		01/03/23 07:51	01/04/23 14:44	1
Indeno[1,2,3-cd]pyrene	ND		0.050	ug/L		01/03/23 07:51	01/04/23 14:44	1
Isophorone	ND		0.50	ug/L		01/03/23 07:51	01/04/23 14:44	1
Lindane	ND		0.040	ug/L		01/03/23 07:51	01/04/23 14:44	1
Malathion	ND		0.10	ug/L		01/03/23 07:51	01/04/23 14:44	1
Methoxychlor	ND		0.10	ug/L		01/03/23 07:51	01/04/23 14:44	1
Metolachlor	ND		0.050	ug/L		01/03/23 07:51	01/04/23 14:44	1
Metribuzin	ND		0.050	ug/L		01/03/23 07:51	01/04/23 14:44	1
Molinate	ND		0.10	ug/L		01/03/23 07:51	01/04/23 14:44	1
Naphthalene	ND		0.30	ug/L		01/03/23 07:51	01/04/23 14:44	1
Parathion	ND		0.10	ug/L		01/03/23 07:51	01/04/23 14:44	1
Pendimethalin (Penoxaline)	ND		0.10	ug/L		01/03/23 07:51	01/04/23 14:44	1
Total Permethrin (mixed isomers)	ND		0.20	ug/L		01/03/23 07:51	01/04/23 14:44	1
Phenanthrene	ND		0.040	ug/L		01/03/23 07:51	01/04/23 14:44	1
Propachlor	ND		0.050	ug/L		01/03/23 07:51	01/04/23 14:44	1
Pyrene	ND		0.050	ug/L		01/03/23 07:51	01/04/23 14:44	1
Simazine	ND		0.050	ug/L		01/03/23 07:51	01/04/23 14:44	1
Terbacil	ND		0.10	ug/L		01/03/23 07:51	01/04/23 14:44	1
Terbutylazine	ND		0.10	ug/L		01/03/23 07:51	01/04/23 14:44	1
Thiobencarb	ND		0.20	ug/L		01/03/23 07:51	01/04/23 14:44	1
trans-Nonachlor	ND		0.050	ug/L		01/03/23 07:51	01/04/23 14:44	1
Trifluralin	ND		0.10	ug/L		01/03/23 07:51	01/04/23 14:44	1

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Tentatively Identified Compound	None		ug/L				01/03/23 07:51	01/04/23 14:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	104		70 - 130	01/03/23 07:51	01/04/23 14:44	1
Triphenylphosphate	113		70 - 130	01/03/23 07:51	01/04/23 14:44	1
Perylene-d12	101		70 - 130	01/03/23 07:51	01/04/23 14:44	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		01/03/23 00:00	01/09/23 01:04	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/09/23 01:04	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/09/23 01:04	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/09/23 01:04	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/09/23 01:04	1
Acenaphthene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/09/23 01:04	1
Acenaphthylene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/09/23 01:04	1
Anthracene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/09/23 01:04	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/09/23 01:04	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/09/23 01:04	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/09/23 01:04	1

Eurofins Eaton Monrovia



# Client Sample Results

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

Job ID: 380-32804-1

## Client Sample ID: MOANALUA WELLS

## Lab Sample ID: 380-32804-1

Date Collected: 12/27/22 11:25

Matrix: Drinking Water

Date Received: 12/29/22 10:10

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[e]pyrene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/09/23 01:04	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/09/23 01:04	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/09/23 01:04	1
Biphenyl	ND		0.005	0.001	µg/L		01/03/23 00:00	01/09/23 01:04	1
Chrysene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/09/23 01:04	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/09/23 01:04	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/09/23 01:04	1
Dibenzothiophene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/09/23 01:04	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		01/03/23 00:00	01/09/23 01:04	1
Fluoranthene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/09/23 01:04	1
Fluorene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/09/23 01:04	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/09/23 01:04	1
Naphthalene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/09/23 01:04	1
Perylene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/09/23 01:04	1
Phenanthrene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/09/23 01:04	1
Pyrene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/09/23 01:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	85		27 - 133	01/03/23 00:00	01/09/23 01:04	1
(d10-Phenanthrene)	92		43 - 129	01/03/23 00:00	01/09/23 01:04	1
(d12-Chrysene)	99		52 - 144	01/03/23 00:00	01/09/23 01:04	1
(d12-Perylene)	96		36 - 161	01/03/23 00:00	01/09/23 01:04	1
(d8-Naphthalene)	74		25 - 125	01/03/23 00:00	01/09/23 01:04	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GASOLINE	ND	U	0.020		mg/L			01/03/23 18:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
BROMOFLUOROBENZENE	90		60 - 140		01/03/23 18:36	1

### Method: 8015 LL DRO/MRO/JP5/JP8 - 8015 - TPH DRO/ORO

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DIESEL	ND	U	0.028		mg/L			01/06/23 05:40	1
JP5	ND	U	0.056		mg/L			01/06/23 05:40	1
JP8	ND	U	0.056		mg/L			01/06/23 05:40	1
MOTOR OIL	ND	U	0.056		mg/L			01/06/23 05:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
BROMOBENZENE	82		60 - 130		01/06/23 05:40	1
HEXACOSANE	117		60 - 130		01/06/23 05:40	1

## Client Sample ID: TB MOANALUA WELLS

## Lab Sample ID: 380-32804-2

Date Collected: 12/27/22 11:25

Matrix: Drinking Water

Date Received: 12/29/22 10:10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GASOLINE	ND	U	0.020		mg/L			01/03/23 20:28	1

Eurofins Eaton Monrovia

# Client Sample Results

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

Job ID: 380-32804-1

**Client Sample ID: TB MOANALUA WELLS**

**Lab Sample ID: 380-32804-2**

**Date Collected: 12/27/22 11:25**

**Matrix: Drinking Water**

**Date Received: 12/29/22 10:10**

<u>Surrogate</u>	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>	<u>Prepared</u>	<u>Analyzed</u>	<u>Dil Fac</u>
BROMOFLUOROBENZENE	85		60 - 140		01/03/23 20:28	1

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# Action Limit Summary

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

Job ID: 380-32804-1

**Client Sample ID: MOANALUA WELLS**

**Lab Sample ID: 380-32804-1**

**PWSID Number: HI0000331**

## Compliance Check

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

Analyte	Result	Qualifier	Unit	EPAMCL	RL	Method	Prep Type
				Limit			
Alachlor	ND		ug/L	2	0.050	525.2	Total/NA
Atrazine	ND		ug/L	3	0.050	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	0.60	525.2	Total/NA
Bis(2-ethylhexyl) phthalate	ND		ug/L	6	0.60	525.2	Total/NA
Endrin	ND		ug/L	2	0.10	525.2	Total/NA
Heptachlor	ND		ug/L	0.4	0.040	525.2	Total/NA
Heptachlor epoxide (isomer B)	ND		ug/L	0.2	0.050	525.2	Total/NA
Hexachlorobenzene	ND		ug/L	1	0.050	525.2	Total/NA
Hexachlorocyclopentadiene	ND		ug/L	50	0.050	525.2	Total/NA
Lindane	ND		ug/L	0.2	0.040	525.2	Total/NA
Methoxychlor	ND		ug/L	40	0.10	525.2	Total/NA
Simazine	ND		ug/L	4	0.050	525.2	Total/NA

# Surrogate Summary

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

Job ID: 380-32804-1

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

Matrix: Drinking Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	2NMX (70-130)	TPP (70-130)	PRY (70-130)
380-32804-1	MOANALUA WELLS	104	113	101

#### 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

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	2NMX (70-130)	TPP (70-130)	PRY (70-130)
380-32809-B-1-A MS	Matrix Spike	100	111	99
380-32810-Q-1-A DU	Duplicate	102	119	87
LCS 380-28602/3-A	Lab Control Sample	100	108	100
LCS 380-28602/4-A	Lab Control Sample Dup	100	111	97
MB 380-28602/1-A	Method Blank	100	108	93
MRL 380-28602/2-A	Lab Control Sample	102	101	94

#### Surrogate Legend

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

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

Matrix: BlankMatrix

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Acenaphtl (27-133)	Phenanth (43-129)	CRY (52-144)	NPT (25-125)	PRY (36-161)
103112-B1	Method Blank	89	92	100	84	98
103112-BS1	Lab Control Sample	90	93	97	83	94
103112-BS2	Lab Control Sample Dup	89	93	95	82	99

#### Surrogate Legend

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

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

Matrix: Drinking Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Acenaphtl (27-133)	Phenanth (43-129)	CRY (52-144)	NPT (25-125)	PRY (36-161)
380-32804-1	MOANALUA WELLS	85	92	99	74	96

#### Surrogate Legend

(d10-Acenaphthene) = (d10-Acenaphthene)  
(d10-Phenanthrene) = (d10-Phenanthrene)

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# Surrogate Summary

Client: City & County of Honolulu

Job ID: 380-32804-1

Project/Site: RED-HILL

CRY = (d12-Chrysene)

NPT = (d8-Naphthalene)

PRY = (d12-Perylene)

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

Matrix: Drinking Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB (60-140)
380-32804-1	MOANALUA WELLS	90
380-32804-2	TB MOANALUA WELLS	85

#### Surrogate Legend

BFB = BROMOFLUOROBENZENE

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

Matrix: WATER

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB
22VGH7A01B	Method Blank	

#### Surrogate Legend

BFB = BROMOFLUOROBENZENE

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

Matrix: WATER

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB (70-130)
22VGH7A01C	LCD	102
22VGH7A01L	Lab Control Sample	118

#### Surrogate Legend

BFB = BROMOFLUOROBENZENE

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

Matrix: WATER

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB (60-140)
22L316-01M	Matrix Spike	102
22L316-01S	Matrix Spike Duplicate	108

#### Surrogate Legend

BFB = BROMOFLUOROBENZENE

## Method: 8015 LL DRO/MRO/JP5/JP8 - 8015 - TPH DRO/ORO

Matrix: Drinking Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BB (60-130)	XACOSAI (60-130)
380-32804-1	MOANALUA WELLS	82	117

#### Surrogate Legend

BB = BROMOBENZENE

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# Surrogate Summary

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

Job ID: 380-32804-1

HEXACOSANE = HEXACOSANE

## Method: 8015 LL DRO/MRO/JP5/JP8 - 8015 - TPH DRO/ORO

Matrix: WATER

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

BB XACOSAI

Lab Sample ID	Client Sample ID	BB	XACOSAI
22DSA006WB	Method Blank		

#### Surrogate Legend

BB = BROMOBENZENE

HEXACOSANE = HEXACOSANE

## Method: 8015 LL DRO/MRO/JP5/JP8 - 8015 - TPH DRO/ORO

Matrix: WATER

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

BB XACOSAI

Lab Sample ID	Client Sample ID	BB (60-130)	XACOSAI (60-130)
22DSA006WC	LCD	98	114
22DSA006WL	Lab Control Sample	107	122
22J5A006WC	LCD	79	110
22J5A006WL	Lab Control Sample	93	117
22J8A006WC	LCD	98	110

#### Surrogate Legend

BB = BROMOBENZENE

HEXACOSANE = HEXACOSANE

## Method: 8015 LL DRO/MRO/JP5/JP8 - 8015 LL DRO/MRO/JP5/JP8

Matrix: WATER

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

BB XACOSAI

Lab Sample ID	Client Sample ID	BB (60-130)	XACOSAI (60-130)
22J8A006WL	Lab Control Sample	97	116

#### Surrogate Legend

BB = BROMOBENZENE

HEXACOSANE = HEXACOSANE

# QC Sample Results

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

Job ID: 380-32804-1

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

**Lab Sample ID: MB 380-28602/1-A**  
**Matrix: Water**  
**Analysis Batch: 28759**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 28602**

Analyte	MB	MB	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
2,4'-DDD	ND		0.099	ug/L		01/03/23 07:51	01/04/23 11:23	1
2,4'-DDE	ND		0.099	ug/L		01/03/23 07:51	01/04/23 11:23	1
2,4'-DDT	ND		0.099	ug/L		01/03/23 07:51	01/04/23 11:23	1
2,4-Dinitrotoluene	ND		0.099	ug/L		01/03/23 07:51	01/04/23 11:23	1
2,6-Dinitrotoluene	ND		0.099	ug/L		01/03/23 07:51	01/04/23 11:23	1
4,4'-DDD	ND		0.099	ug/L		01/03/23 07:51	01/04/23 11:23	1
4,4'-DDE	ND		0.099	ug/L		01/03/23 07:51	01/04/23 11:23	1
4,4'-DDT	ND		0.099	ug/L		01/03/23 07:51	01/04/23 11:23	1
Acenaphthene	ND		0.099	ug/L		01/03/23 07:51	01/04/23 11:23	1
Acenaphthylene	ND		0.099	ug/L		01/03/23 07:51	01/04/23 11:23	1
Acetochlor	ND		0.099	ug/L		01/03/23 07:51	01/04/23 11:23	1
Alachlor	ND		0.050	ug/L		01/03/23 07:51	01/04/23 11:23	1
alpha-BHC	ND		0.099	ug/L		01/03/23 07:51	01/04/23 11:23	1
alpha-Chlordane	ND		0.050	ug/L		01/03/23 07:51	01/04/23 11:23	1
Anthracene	ND		0.020	ug/L		01/03/23 07:51	01/04/23 11:23	1
Atrazine	ND		0.050	ug/L		01/03/23 07:51	01/04/23 11:23	1
Benz(a)anthracene	ND		0.050	ug/L		01/03/23 07:51	01/04/23 11:23	1
Benzo[a]pyrene	ND		0.020	ug/L		01/03/23 07:51	01/04/23 11:23	1
Benzo[b]fluoranthene	ND		0.020	ug/L		01/03/23 07:51	01/04/23 11:23	1
Benzo[g,h,i]perylene	ND		0.050	ug/L		01/03/23 07:51	01/04/23 11:23	1
Benzo[k]fluoranthene	ND		0.020	ug/L		01/03/23 07:51	01/04/23 11:23	1
beta-BHC	ND		0.099	ug/L		01/03/23 07:51	01/04/23 11:23	1
Bromacil	ND		0.099	ug/L		01/03/23 07:51	01/04/23 11:23	1
Butachlor	ND		0.050	ug/L		01/03/23 07:51	01/04/23 11:23	1
Butylbenzylphthalate	ND		0.50	ug/L		01/03/23 07:51	01/04/23 11:23	1
Caffeine	ND		0.050	ug/L		01/03/23 07:51	01/04/23 11:23	1
Chlorobenzilate	ND		0.099	ug/L		01/03/23 07:51	01/04/23 11:23	1
Chloroneb	ND		0.099	ug/L		01/03/23 07:51	01/04/23 11:23	1
Chlorothalonil (Draconil, Bravo)	ND		0.099	ug/L		01/03/23 07:51	01/04/23 11:23	1
Chlorpyrifos	ND		0.050	ug/L		01/03/23 07:51	01/04/23 11:23	1
Chrysene	ND		0.020	ug/L		01/03/23 07:51	01/04/23 11:23	1
delta-BHC	ND		0.099	ug/L		01/03/23 07:51	01/04/23 11:23	1
Di(2-ethylhexyl)adipate	ND		0.60	ug/L		01/03/23 07:51	01/04/23 11:23	1
Bis(2-ethylhexyl) phthalate	ND		0.60	ug/L		01/03/23 07:51	01/04/23 11:23	1
Diazinon (Qualitative)	ND		0.099	ug/L		01/03/23 07:51	01/04/23 11:23	1
Dibenz(a,h)anthracene	ND		0.050	ug/L		01/03/23 07:51	01/04/23 11:23	1
Diclorvos (DDVP)	ND		0.050	ug/L		01/03/23 07:51	01/04/23 11:23	1
Dieldrin	ND		0.20	ug/L		01/03/23 07:51	01/04/23 11:23	1
Diethylphthalate	ND		0.50	ug/L		01/03/23 07:51	01/04/23 11:23	1
Dimethoate	ND		0.099	ug/L		01/03/23 07:51	01/04/23 11:23	1
Dimethylphthalate	ND		0.50	ug/L		01/03/23 07:51	01/04/23 11:23	1
Di-n-butyl phthalate	ND		0.99	ug/L		01/03/23 07:51	01/04/23 11:23	1
Di-n-octyl phthalate	ND		0.099	ug/L		01/03/23 07:51	01/04/23 11:23	1
Endosulfan I (Alpha)	ND		0.099	ug/L		01/03/23 07:51	01/04/23 11:23	1
Endosulfan II (Beta)	ND		0.099	ug/L		01/03/23 07:51	01/04/23 11:23	1
Endosulfan sulfate	ND		0.099	ug/L		01/03/23 07:51	01/04/23 11:23	1
Endrin	ND		0.099	ug/L		01/03/23 07:51	01/04/23 11:23	1
Endrin aldehyde	ND		0.099	ug/L		01/03/23 07:51	01/04/23 11:23	1

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# QC Sample Results

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

Job ID: 380-32804-1

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

**Lab Sample ID: MB 380-28602/1-A**  
**Matrix: Water**  
**Analysis Batch: 28759**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 28602**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
EPTC	ND		0.099	ug/L		01/03/23 07:51	01/04/23 11:23	1
Fluoranthene	ND		0.099	ug/L		01/03/23 07:51	01/04/23 11:23	1
Fluorene	ND		0.050	ug/L		01/03/23 07:51	01/04/23 11:23	1
gamma-Chlordane	ND		0.050	ug/L		01/03/23 07:51	01/04/23 11:23	1
Heptachlor	ND		0.040	ug/L		01/03/23 07:51	01/04/23 11:23	1
Heptachlor epoxide (isomer B)	ND		0.050	ug/L		01/03/23 07:51	01/04/23 11:23	1
Hexachlorobenzene	ND		0.050	ug/L		01/03/23 07:51	01/04/23 11:23	1
Hexachlorocyclopentadiene	ND		0.050	ug/L		01/03/23 07:51	01/04/23 11:23	1
Indeno[1,2,3-cd]pyrene	ND		0.050	ug/L		01/03/23 07:51	01/04/23 11:23	1
Isophorone	ND		0.50	ug/L		01/03/23 07:51	01/04/23 11:23	1
Lindane	ND		0.040	ug/L		01/03/23 07:51	01/04/23 11:23	1
Malathion	ND		0.099	ug/L		01/03/23 07:51	01/04/23 11:23	1
Methoxychlor	ND		0.099	ug/L		01/03/23 07:51	01/04/23 11:23	1
Metolachlor	ND		0.050	ug/L		01/03/23 07:51	01/04/23 11:23	1
Metribuzin	ND		0.050	ug/L		01/03/23 07:51	01/04/23 11:23	1
Molinate	ND		0.099	ug/L		01/03/23 07:51	01/04/23 11:23	1
Naphthalene	ND		0.30	ug/L		01/03/23 07:51	01/04/23 11:23	1
Parathion	ND		0.099	ug/L		01/03/23 07:51	01/04/23 11:23	1
Pendimethalin (Penoxaline)	ND		0.099	ug/L		01/03/23 07:51	01/04/23 11:23	1
Total Permethrin (mixed isomers)	ND		0.20	ug/L		01/03/23 07:51	01/04/23 11:23	1
Phenanthrene	ND		0.040	ug/L		01/03/23 07:51	01/04/23 11:23	1
Propachlor	ND		0.050	ug/L		01/03/23 07:51	01/04/23 11:23	1
Pyrene	ND		0.050	ug/L		01/03/23 07:51	01/04/23 11:23	1
Simazine	ND		0.050	ug/L		01/03/23 07:51	01/04/23 11:23	1
Terbacil	ND		0.099	ug/L		01/03/23 07:51	01/04/23 11:23	1
Terbutylazine	ND		0.099	ug/L		01/03/23 07:51	01/04/23 11:23	1
Thiobencarb	ND		0.20	ug/L		01/03/23 07:51	01/04/23 11:23	1
trans-Nonachlor	ND		0.050	ug/L		01/03/23 07:51	01/04/23 11:23	1
Trifluralin	ND		0.099	ug/L		01/03/23 07:51	01/04/23 11:23	1

<i>Tentatively Identified Compound</i>	MB Est. Result	MB Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
<i>Tentatively Identified Compound</i>	None		ug/L				01/03/23 07:51	01/04/23 11:23	1

<i>Surrogate</i>	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
<i>2-Nitro-m-xylene</i>	100		70 - 130	01/03/23 07:51	01/04/23 11:23	1
<i>Triphenylphosphate</i>	108		70 - 130	01/03/23 07:51	01/04/23 11:23	1
<i>Perylene-d12</i>	93		70 - 130	01/03/23 07:51	01/04/23 11:23	1

**Lab Sample ID: LCS 380-28602/3-A**  
**Matrix: Water**  
**Analysis Batch: 28759**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 28602**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4'-DDD	1.98	1.77		ug/L		90	70 - 130
2,4'-DDE	1.98	1.79		ug/L		90	70 - 130
2,4'-DDT	1.98	1.97		ug/L		100	70 - 130
2,4-Dinitrotoluene	1.98	1.68		ug/L		85	70 - 130
2,6-Dinitrotoluene	1.98	1.71		ug/L		86	70 - 130

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# QC Sample Results

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

Job ID: 380-32804-1

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

**Lab Sample ID: LCS 380-28602/3-A**  
**Matrix: Water**  
**Analysis Batch: 28759**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 28602**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
4,4'-DDD	1.98	2.02		ug/L		102	70 - 130
4,4'-DDE	1.98	1.89		ug/L		96	70 - 130
4,4'-DDT	1.98	2.03		ug/L		102	70 - 130
Acenaphthene	1.98	1.78		ug/L		90	70 - 130
Acenaphthylene	1.98	1.76		ug/L		89	70 - 130
Acetochlor	1.98	1.98		ug/L		100	70 - 130
Alachlor	1.98	1.87		ug/L		95	70 - 130
alpha-BHC	1.98	1.80		ug/L		91	70 - 130
alpha-Chlordane	1.98	1.78		ug/L		90	70 - 130
Anthracene	1.98	1.83		ug/L		92	70 - 130
Atrazine	1.98	1.81		ug/L		91	70 - 130
Benz(a)anthracene	1.98	2.00		ug/L		101	70 - 130
Benzo[a]pyrene	1.98	1.98		ug/L		100	70 - 130
Benzo[b]fluoranthene	1.98	1.92		ug/L		97	70 - 130
Benzo[g,h,i]perylene	1.98	2.02		ug/L		102	70 - 130
Benzo[k]fluoranthene	1.98	1.95		ug/L		98	70 - 130
beta-BHC	1.98	1.89		ug/L		96	70 - 130
Bromacil	1.98	2.06		ug/L		104	70 - 130
Butachlor	1.98	2.00		ug/L		101	70 - 130
Butylbenzylphthalate	1.98	2.09		ug/L		106	70 - 130
Caffeine	1.98	1.41		ug/L		71	45 - 137
Chlorobenzilate	1.98	1.92		ug/L		97	70 - 130
Chloroneb	1.98	1.70		ug/L		86	70 - 130
Chlorothalonil (Draconil, Bravo)	1.98	1.75		ug/L		88	70 - 130
Chlorpyrifos	1.98	1.87		ug/L		95	70 - 130
Chrysene	1.98	1.80		ug/L		91	70 - 130
delta-BHC	1.98	1.84		ug/L		93	70 - 130
Di(2-ethylhexyl)adipate	1.98	2.32		ug/L		117	70 - 130
Bis(2-ethylhexyl) phthalate	1.98	1.86		ug/L		94	70 - 130
Diazinon (Qualitative)	1.98	1.68		ug/L		85	15 - 132
Dibenz(a,h)anthracene	1.98	2.17		ug/L		109	70 - 130
Diclorvos (DDVP)	1.98	2.11		ug/L		107	70 - 130
Dieldrin	1.98	1.89		ug/L		96	70 - 130
Diethylphthalate	1.98	1.80		ug/L		91	70 - 130
Dimethoate	1.98	1.19		ug/L		60	35 - 100
Dimethylphthalate	1.98	1.81		ug/L		91	70 - 130
Di-n-butyl phthalate	3.96	3.68		ug/L		93	70 - 130
Di-n-octyl phthalate	1.98	1.97		ug/L		100	70 - 130
Endosulfan I (Alpha)	1.98	1.71		ug/L		86	70 - 130
Endosulfan II (Beta)	1.98	1.99		ug/L		101	70 - 130
Endosulfan sulfate	1.98	2.04		ug/L		103	70 - 130
Endrin	1.98	2.03		ug/L		102	70 - 130
Endrin aldehyde	1.98	1.85		ug/L		93	70 - 130
EPTC	1.98	1.91		ug/L		97	70 - 130
Fluoranthene	1.98	1.87		ug/L		95	70 - 130
Fluorene	1.98	1.75		ug/L		88	70 - 130
gamma-Chlordane	1.98	1.81		ug/L		91	70 - 130
Heptachlor	1.98	1.84		ug/L		93	70 - 130
Heptachlor epoxide (isomer B)	1.98	1.84		ug/L		93	70 - 130

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# QC Sample Results

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

Job ID: 380-32804-1

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

**Lab Sample ID: LCS 380-28602/3-A**  
**Matrix: Water**  
**Analysis Batch: 28759**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 28602**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Hexachlorobenzene	1.98	1.68		ug/L		85	70 - 130
Hexachlorocyclopentadiene	1.98	1.89		ug/L		96	70 - 130
Indeno[1,2,3-cd]pyrene	1.98	2.16		ug/L		109	70 - 130
Isophorone	1.98	1.96		ug/L		99	70 - 130
Lindane	1.98	1.80		ug/L		91	70 - 130
Malathion	1.98	2.05		ug/L		104	70 - 130
Methoxychlor	1.98	2.01		ug/L		102	70 - 130
Metolachlor	1.98	2.06		ug/L		104	70 - 130
Metribuzin	1.98	2.08		ug/L		105	70 - 130
Molinate	1.98	1.92		ug/L		97	70 - 130
Naphthalene	1.98	1.80		ug/L		91	70 - 130
Parathion	1.98	2.06		ug/L		104	70 - 130
Pendimethalin (Penoxaline)	1.98	1.89		ug/L		96	70 - 130
Phenanthrene	1.98	1.77		ug/L		90	70 - 130
Propachlor	1.98	1.86		ug/L		94	70 - 130
Pyrene	1.98	1.88		ug/L		95	70 - 130
Simazine	1.98	1.89		ug/L		95	70 - 130
Terbacil	1.98	2.13		ug/L		108	70 - 130
Terbutylazine	1.98	1.84		ug/L		93	70 - 130
Thiobencarb	1.98	2.00		ug/L		101	70 - 130
trans-Nonachlor	1.98	1.77		ug/L		90	70 - 130
Trifluralin	1.98	1.73		ug/L		88	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Nitro-m-xylene	100		70 - 130
Triphenylphosphate	108		70 - 130
Perylene-d12	100		70 - 130

**Lab Sample ID: LCSD 380-28602/4-A**  
**Matrix: Water**  
**Analysis Batch: 28759**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 28602**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2,4'-DDD	1.98	1.84		ug/L		93	70 - 130	4	20
2,4'-DDE	1.98	1.88		ug/L		95	70 - 130	5	20
2,4'-DDT	1.98	2.05		ug/L		103	70 - 130	4	20
2,4-Dinitrotoluene	1.98	1.78		ug/L		90	70 - 130	6	20
2,6-Dinitrotoluene	1.98	1.80		ug/L		91	70 - 130	5	20
4,4'-DDD	1.98	2.05		ug/L		103	70 - 130	1	20
4,4'-DDE	1.98	1.98		ug/L		100	70 - 130	4	20
4,4'-DDT	1.98	2.07		ug/L		105	70 - 130	2	20
Acenaphthene	1.98	1.85		ug/L		93	70 - 130	4	20
Acenaphthylene	1.98	1.85		ug/L		93	70 - 130	5	20
Acetochlor	1.98	2.01		ug/L		102	70 - 130	2	20
Alachlor	1.98	1.91		ug/L		96	70 - 130	2	20
alpha-BHC	1.98	1.85		ug/L		93	70 - 130	3	20
alpha-Chlordane	1.98	1.87		ug/L		94	70 - 130	5	20
Anthracene	1.98	1.89		ug/L		95	70 - 130	4	20

Eurofins Eaton Monrovia

# QC Sample Results

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

Job ID: 380-32804-1

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

**Lab Sample ID: LCSD 380-28602/4-A**  
**Matrix: Water**  
**Analysis Batch: 28759**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 28602**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	RPD Limit
							Limits	RPD		
Atrazine	1.98	1.87		ug/L		94	70 - 130	3	20	
Benz(a)anthracene	1.98	2.11		ug/L		107	70 - 130	6	20	
Benzo[a]pyrene	1.98	2.02		ug/L		102	70 - 130	2	20	
Benzo[b]fluoranthene	1.98	2.01		ug/L		101	70 - 130	4	20	
Benzo[g,h,i]perylene	1.98	1.95		ug/L		98	70 - 130	4	20	
Benzo[k]fluoranthene	1.98	2.05		ug/L		103	70 - 130	5	20	
beta-BHC	1.98	1.95		ug/L		98	70 - 130	3	20	
Bromacil	1.98	2.20		ug/L		111	70 - 130	7	20	
Butachlor	1.98	2.08		ug/L		105	70 - 130	4	20	
Butylbenzylphthalate	1.98	2.21		ug/L		111	70 - 130	5	20	
Caffeine	1.98	1.43		ug/L		72	45 - 137	1	20	
Chlorobenzilate	1.98	2.00		ug/L		101	70 - 130	4	20	
Chloroneb	1.98	1.75		ug/L		88	70 - 130	3	20	
Chlorothalonil (Draconil, Bravo)	1.98	1.84		ug/L		93	70 - 130	5	20	
Chlorpyrifos	1.98	1.97		ug/L		100	70 - 130	5	20	
Chrysene	1.98	1.83		ug/L		93	70 - 130	2	20	
delta-BHC	1.98	2.04		ug/L		103	70 - 130	10	20	
Di(2-ethylhexyl)adipate	1.98	2.26		ug/L		114	70 - 130	2	20	
Bis(2-ethylhexyl) phthalate	1.98	1.79		ug/L		90	70 - 130	4	20	
Diazinon (Qualitative)	1.98	1.74		ug/L		88	15 - 132	4	20	
Dibenz(a,h)anthracene	1.98	2.09		ug/L		106	70 - 130	4	20	
Diclorvos (DDVP)	1.98	2.14		ug/L		108	70 - 130	1	20	
Dieldrin	1.98	2.03		ug/L		102	70 - 130	7	20	
Diethylphthalate	1.98	1.87		ug/L		94	70 - 130	4	20	
Dimethoate	1.98	1.29		ug/L		65	35 - 100	8	20	
Dimethylphthalate	1.98	1.85		ug/L		93	70 - 130	2	20	
Di-n-butyl phthalate	3.97	3.98		ug/L		100	70 - 130	8	20	
Di-n-octyl phthalate	1.98	1.78		ug/L		90	70 - 130	10	20	
Endosulfan I (Alpha)	1.98	1.77		ug/L		89	70 - 130	4	20	
Endosulfan II (Beta)	1.98	2.04		ug/L		103	70 - 130	2	20	
Endosulfan sulfate	1.98	2.14		ug/L		108	70 - 130	5	20	
Endrin	1.98	2.25		ug/L		114	70 - 130	10	20	
Endrin aldehyde	1.98	1.92		ug/L		97	70 - 130	4	20	
EPTC	1.98	1.98		ug/L		100	70 - 130	3	20	
Fluoranthene	1.98	1.99		ug/L		100	70 - 130	6	20	
Fluorene	1.98	1.86		ug/L		94	70 - 130	6	20	
gamma-Chlordane	1.98	1.87		ug/L		94	70 - 130	3	20	
Heptachlor	1.98	1.89		ug/L		95	70 - 130	3	20	
Heptachlor epoxide (isomer B)	1.98	1.97		ug/L		99	70 - 130	7	20	
Hexachlorobenzene	1.98	1.79		ug/L		90	70 - 130	6	20	
Hexachlorocyclopentadiene	1.98	1.93		ug/L		97	70 - 130	2	20	
Indeno[1,2,3-cd]pyrene	1.98	2.14		ug/L		108	70 - 130	1	20	
Isophorone	1.98	1.99		ug/L		100	70 - 130	2	20	
Lindane	1.98	1.83		ug/L		92	70 - 130	2	20	
Malathion	1.98	2.10		ug/L		106	70 - 130	2	20	
Methoxychlor	1.98	2.10		ug/L		106	70 - 130	4	20	
Metolachlor	1.98	2.13		ug/L		108	70 - 130	4	20	
Metribuzin	1.98	2.17		ug/L		109	70 - 130	4	20	
Molinate	1.98	2.01		ug/L		102	70 - 130	5	20	

Eurofins Eaton Monrovia

# QC Sample Results

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

Job ID: 380-32804-1

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

**Lab Sample ID: LCSD 380-28602/4-A**  
**Matrix: Water**  
**Analysis Batch: 28759**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 28602**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Naphthalene	1.98	1.82		ug/L		92	70 - 130	1	20
Parathion	1.98	2.17		ug/L		110	70 - 130	5	20
Pendimethalin (Penoxaline)	1.98	2.00		ug/L		101	70 - 130	6	20
Phenanthrene	1.98	1.85		ug/L		93	70 - 130	4	20
Propachlor	1.98	1.94		ug/L		98	70 - 130	4	20
Pyrene	1.98	1.99		ug/L		100	70 - 130	5	20
Simazine	1.98	2.00		ug/L		101	70 - 130	6	20
Terbacil	1.98	2.16		ug/L		109	70 - 130	1	20
Terbutylazine	1.98	2.00		ug/L		101	70 - 130	8	20
Thiobencarb	1.98	2.06		ug/L		104	70 - 130	3	20
trans-Nonachlor	1.98	1.86		ug/L		94	70 - 130	5	20
Trifluralin	1.98	1.82		ug/L		92	70 - 130	5	20

Surrogate	LCSD %Recovery	LCSD Qualifier	LCSD Limits
2-Nitro-m-xylene	100		70 - 130
Triphenylphosphate	111		70 - 130
Perylene-d12	97		70 - 130

**Lab Sample ID: MRL 380-28602/2-A**  
**Matrix: Water**  
**Analysis Batch: 28759**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 28602**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
2,4'-DDD	0.0994	0.125		ug/L		126	50 - 150
2,4'-DDE	0.0994	0.0923	J	ug/L		93	50 - 150
2,4'-DDT	0.0994	0.0950	J	ug/L		96	50 - 150
2,4-Dinitrotoluene	0.0994	0.0813	J	ug/L		82	50 - 150
2,6-Dinitrotoluene	0.0994	0.0858	J	ug/L		86	50 - 150
4,4'-DDD	0.0994	0.0941	J	ug/L		95	50 - 150
4,4'-DDE	0.0994	0.0905	J	ug/L		91	50 - 150
4,4'-DDT	0.0994	0.0944	J	ug/L		95	50 - 150
Acenaphthene	0.0994	0.0954	J	ug/L		96	50 - 150
Acenaphthylene	0.0994	0.0828	J	ug/L		83	50 - 150
Acetochlor	0.0497	0.0422	J	ug/L		85	50 - 150
Alachlor	0.0497	0.0548		ug/L		110	50 - 150
alpha-BHC	0.0994	0.0872	J	ug/L		88	50 - 150
alpha-Chlordane	0.0249	ND		ug/L		88	50 - 150
Anthracene	0.0199	ND		ug/L		90	50 - 150
Atrazine	0.0497	ND		ug/L		79	50 - 150
Benz(a)anthracene	0.0497	0.0429	J	ug/L		86	50 - 150
Benzo[a]pyrene	0.0199	0.0176	J	ug/L		88	50 - 150
Benzo[b]fluoranthene	0.0199	0.0175	J	ug/L		88	50 - 150
Benzo[g,h,i]perylene	0.0497	0.0463	J	ug/L		93	50 - 150
Benzo[k]fluoranthene	0.0199	0.0203		ug/L		102	50 - 150
beta-BHC	0.0994	0.0996		ug/L		100	50 - 150
Bromacil	0.0994	0.0990		ug/L		100	50 - 150
Butachlor	0.0497	0.0509		ug/L		102	50 - 150
Butylbenzylphthalate	0.149	0.148	J	ug/L		100	50 - 150

Eurofins Eaton Monrovia

# QC Sample Results

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

Job ID: 380-32804-1

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

**Lab Sample ID: MRL 380-28602/2-A**  
**Matrix: Water**  
**Analysis Batch: 28759**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 28602**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Caffeine	0.0497	0.0340	J	ug/L		68	50 - 150
Chlorobenzilate	0.0994	0.0788	J	ug/L		79	50 - 150
Chloroneb	0.0994	0.113		ug/L		114	50 - 150
Chlorothalonil (Draconil, Bravo)	0.0994	0.189	^3+	ug/L		190	50 - 150
Chlorpyrifos	0.0497	0.0447	J	ug/L		90	50 - 150
Chrysene	0.0199	0.0181	J	ug/L		91	50 - 150
delta-BHC	0.0994	0.118		ug/L		119	50 - 150
Di(2-ethylhexyl)adipate	0.298	0.355	J	ug/L		119	50 - 150
Bis(2-ethylhexyl) phthalate	0.596	0.630		ug/L		106	50 - 150
Diazinon (Qualitative)	0.0994	0.0834	J	ug/L		84	15 - 132
Dibenz(a,h)anthracene	0.0497	0.0509		ug/L		102	50 - 150
Diclorvos (DDVP)	0.0497	0.0561		ug/L		113	50 - 150
Dieldrin	0.0994	0.120	J	ug/L		121	50 - 150
Diethylphthalate	0.149	0.150	J	ug/L		100	50 - 150
Dimethoate	0.0994	0.0454	J	ug/L		46	35 - 100
Dimethylphthalate	0.298	0.270	J	ug/L		91	50 - 150
Di-n-butyl phthalate	0.298	0.331	J	ug/L		111	49 - 243
Di-n-octyl phthalate	0.0994	0.0900	J	ug/L		90	50 - 150
Endosulfan I (Alpha)	0.0994	0.128		ug/L		129	50 - 150
Endosulfan II (Beta)	0.0994	0.0898	J	ug/L		90	50 - 150
Endosulfan sulfate	0.0994	0.0895	J	ug/L		90	50 - 150
Endrin	0.0994	0.117		ug/L		117	50 - 150
Endrin aldehyde	0.0994	0.0917	J	ug/L		92	50 - 150
EPTC	0.0994	0.111		ug/L		112	50 - 150
Fluoranthene	0.0497	0.0481	J	ug/L		97	50 - 150
Fluorene	0.0497	ND		ug/L		93	50 - 150
gamma-Chlordane	0.0249	0.0263	J	ug/L		106	50 - 150
Heptachlor	0.0398	0.0439		ug/L		111	50 - 150
Heptachlor epoxide (isomer B)	0.0497	0.0480	J	ug/L		97	50 - 150
Hexachlorobenzene	0.0497	0.0438	J	ug/L		88	50 - 150
Hexachlorocyclopentadiene	0.0497	0.0395	J	ug/L		80	50 - 150
Indeno[1,2,3-cd]pyrene	0.0497	0.0451	J	ug/L		91	50 - 150
Isophorone	0.0994	0.0990	J	ug/L		100	50 - 150
Lindane	0.0398	0.0368	J	ug/L		93	50 - 150
Malathion	0.0994	0.0924	J	ug/L		93	50 - 150
Methoxychlor	0.0994	0.0924	J	ug/L		93	50 - 150
Metolachlor	0.0497	0.0490	J	ug/L		99	50 - 150
Metribuzin	0.0497	0.0463	J	ug/L		93	50 - 150
Molinate	0.0994	0.106		ug/L		106	50 - 150
Naphthalene	0.0994	0.0967	J	ug/L		97	50 - 150
Parathion	0.0994	0.0825	J	ug/L		83	50 - 150
Pendimethalin (Penoxaline)	0.0994	0.0754	J	ug/L		76	50 - 150
Phenanthrene	0.0199	0.0202	J	ug/L		102	50 - 150
Propachlor	0.0497	0.0490	J	ug/L		99	50 - 150
Pyrene	0.0497	0.0435	J	ug/L		87	50 - 150
Simazine	0.0497	0.0479	J	ug/L		96	50 - 150
Terbacil	0.0994	0.128		ug/L		129	50 - 150
Terbutylazine	0.0994	0.0861	J	ug/L		87	50 - 150
Thiobencarb	0.0994	0.0967	J	ug/L		97	50 - 150

Eurofins Eaton Monrovia

# QC Sample Results

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

Job ID: 380-32804-1

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

**Lab Sample ID: MRL 380-28602/2-A**  
**Matrix: Water**  
**Analysis Batch: 28759**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 28602**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
trans-Nonachlor	0.0249	ND		ug/L		90	50 - 150
Trifluralin	0.0994	0.0724	J	ug/L		73	50 - 150

Surrogate	MRL %Recovery	MRL Qualifier	Limits
2-Nitro-m-xylene	102		70 - 130
Triphenylphosphate	101		70 - 130
Perylene-d12	94		70 - 130

**Lab Sample ID: 380-32809-B-1-A MS**  
**Matrix: Water**  
**Analysis Batch: 28759**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 28602**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
2,4'-DDD	ND		2.00	1.80		ug/L		90	70 - 130
2,4'-DDE	ND		2.00	1.80		ug/L		90	70 - 130
2,4'-DDT	ND		2.00	1.97		ug/L		98	70 - 130
2,4-Dinitrotoluene	ND		2.00	1.90		ug/L		95	70 - 130
2,6-Dinitrotoluene	ND		2.00	1.94		ug/L		97	70 - 130
4,4'-DDD	ND		2.00	2.04		ug/L		102	70 - 130
4,4'-DDE	ND		2.00	1.87		ug/L		93	70 - 130
4,4'-DDT	ND		2.00	1.98		ug/L		99	70 - 130
Acenaphthene	ND		2.00	1.86		ug/L		93	70 - 130
Acenaphthylene	ND		2.00	1.87		ug/L		94	70 - 130
Acetochlor	ND		2.00	2.09		ug/L		105	70 - 130
Alachlor	ND		2.00	2.01		ug/L		101	70 - 130
alpha-BHC	ND		2.00	1.96		ug/L		98	70 - 130
alpha-Chlordane	ND		2.00	1.92		ug/L		95	70 - 130
Anthracene	ND	F1	2.00	1.25	F1	ug/L		63	70 - 130
Atrazine	ND		2.00	1.98		ug/L		99	70 - 130
Benz(a)anthracene	ND		2.00	1.89		ug/L		95	70 - 130
Benzo[a]pyrene	ND		2.00	1.72		ug/L		86	70 - 130
Benzo[b]fluoranthene	ND		2.00	2.03		ug/L		102	70 - 130
Benzo[g,h,i]perylene	ND		2.00	2.02		ug/L		101	70 - 130
Benzo[k]fluoranthene	ND		2.00	2.01		ug/L		101	70 - 130
beta-BHC	ND		2.00	1.97		ug/L		98	70 - 130
Bromacil	ND		2.00	2.31		ug/L		116	70 - 130
Butachlor	ND		2.00	2.07		ug/L		103	70 - 130
Butylbenzylphthalate	ND		2.00	2.16		ug/L		108	70 - 130
Caffeine	ND		2.00	1.74		ug/L		87	46 - 144
Chlorobenzilate	ND		2.00	2.02		ug/L		101	70 - 130
Chloroneb	ND		2.00	1.82		ug/L		91	70 - 130
Chlorothalonil (Draconil, Bravo)	ND	^3+	2.00	1.89		ug/L		95	70 - 130
Chlorpyrifos	ND		2.00	1.93		ug/L		97	70 - 130
Chrysene	ND		2.00	1.84		ug/L		92	70 - 130
delta-BHC	ND		2.00	1.95		ug/L		98	70 - 130
Di(2-ethylhexyl)adipate	ND		2.00	2.18		ug/L		100	70 - 130
Bis(2-ethylhexyl) phthalate	ND		2.00	1.87		ug/L		93	70 - 130
Diazinon (Qualitative)	ND		2.00	1.90		ug/L		95	15 - 132

# QC Sample Results

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

Job ID: 380-32804-1

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

**Lab Sample ID: 380-32809-B-1-A MS**  
**Matrix: Water**  
**Analysis Batch: 28759**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 28602**

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier	Added	Result	Qualifier				
Dibenz(a,h)anthracene	ND		2.00	2.09		ug/L		104	70 - 130
Diclorvos (DDVP)	ND		2.00	2.26		ug/L		113	70 - 130
Dieldrin	ND		2.00	2.20		ug/L		110	70 - 130
Diethylphthalate	ND		2.00	1.97		ug/L		99	70 - 130
Dimethoate	ND		2.00	1.62		ug/L		81	34 - 111
Dimethylphthalate	ND		2.00	1.95		ug/L		97	70 - 130
Di-n-butyl phthalate	ND		4.00	3.91		ug/L		98	70 - 130
Di-n-octyl phthalate	ND		2.00	1.95		ug/L		98	70 - 130
Endosulfan I (Alpha)	ND		2.00	1.78		ug/L		89	70 - 130
Endosulfan II (Beta)	ND		2.00	2.05		ug/L		102	70 - 130
Endosulfan sulfate	ND		2.00	2.17		ug/L		108	70 - 130
Endrin	ND		2.00	2.20		ug/L		110	70 - 130
Endrin aldehyde	ND		2.00	1.89		ug/L		95	70 - 130
EPTC	ND		2.00	2.01		ug/L		101	70 - 130
Fluoranthene	ND		2.00	1.94		ug/L		97	70 - 130
Fluorene	ND		2.00	1.90		ug/L		95	70 - 130
gamma-Chlordane	ND		2.00	1.88		ug/L		93	70 - 130
Heptachlor	ND		2.00	1.88		ug/L		94	70 - 130
Heptachlor epoxide (isomer B)	ND		2.00	1.96		ug/L		98	70 - 130
Hexachlorobenzene	ND		2.00	1.77		ug/L		89	70 - 130
Hexachlorocyclopentadiene	ND		2.00	1.99		ug/L		100	70 - 130
Indeno[1,2,3-cd]pyrene	ND		2.00	2.13		ug/L		107	70 - 130
Isophorone	ND		2.00	2.00		ug/L		100	70 - 130
Lindane	ND		2.00	1.89		ug/L		94	70 - 130
Malathion	ND		2.00	2.15		ug/L		108	70 - 130
Methoxychlor	ND		2.00	2.21		ug/L		111	70 - 130
Metolachlor	ND		2.00	2.15		ug/L		108	70 - 130
Metribuzin	ND		2.00	2.22		ug/L		111	70 - 130
Molinate	ND		2.00	2.13		ug/L		107	70 - 130
Naphthalene	ND		2.00	1.85		ug/L		92	70 - 130
Parathion	ND		2.00	2.18		ug/L		109	70 - 130
Pendimethalin (Penoxaline)	ND		2.00	2.02		ug/L		101	70 - 130
Phenanthrene	ND		2.00	1.85		ug/L		93	70 - 130
Propachlor	ND		2.00	1.94		ug/L		97	70 - 130
Pyrene	ND		2.00	1.96		ug/L		98	70 - 130
Simazine	ND		2.00	2.06		ug/L		103	70 - 130
Terbacil	ND		2.00	2.21		ug/L		111	70 - 130
Terbutylazine	ND		2.00	2.04		ug/L		102	70 - 130
Thiobencarb	ND		2.00	2.07		ug/L		104	70 - 130
trans-Nonachlor	ND		2.00	1.81		ug/L		91	70 - 130
Trifluralin	ND		2.00	1.91		ug/L		95	70 - 130
		<b>MS</b>	<b>MS</b>						
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
2-Nitro-m-xylene	100		70 - 130						
Triphenylphosphate	111		70 - 130						
Perylene-d12	99		70 - 130						

# QC Sample Results

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

Job ID: 380-32804-1

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

**Lab Sample ID: 380-32810-Q-1-A DU**  
**Matrix: Water**  
**Analysis Batch: 28759**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 28602**

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
2,4'-DDD	ND		ND		ug/L		NC	20
2,4'-DDE	ND		ND		ug/L		NC	20
2,4'-DDT	ND		ND		ug/L		NC	20
2,4-Dinitrotoluene	ND		ND		ug/L		NC	20
2,6-Dinitrotoluene	ND		ND		ug/L		NC	20
4,4'-DDD	ND		ND		ug/L		NC	20
4,4'-DDE	ND		ND		ug/L		NC	20
4,4'-DDT	ND		ND		ug/L		NC	20
Acenaphthene	ND		ND		ug/L		NC	20
Acenaphthylene	ND		ND		ug/L		NC	20
Acetochlor	ND		ND		ug/L		NC	20
Alachlor	ND		ND		ug/L		NC	20
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	^3+	ND		ug/L		NC	20
Chlorpyrifos	ND		ND		ug/L		NC	20
Chrysene	ND		ND		ug/L		NC	20
delta-BHC	ND		ND		ug/L		NC	20
Di(2-ethylhexyl)adipate	ND		ND		ug/L		NC	20
Bis(2-ethylhexyl) phthalate	ND		ND		ug/L		NC	20
Diazinon (Qualitative)	ND		ND		ug/L		NC	20
Dibenz(a,h)anthracene	ND		ND		ug/L		NC	20
Diclorvos (DDVP)	ND		ND		ug/L		NC	20
Dieldrin	ND		ND		ug/L		NC	20
Diethylphthalate	ND		ND		ug/L		NC	20
Dimethoate	ND		ND		ug/L		NC	20
Dimethylphthalate	6.2		6.06		ug/L		3	20
Di-n-butyl phthalate	ND		ND		ug/L		NC	20
Di-n-octyl phthalate	ND		ND		ug/L		NC	20
Endosulfan I (Alpha)	ND		ND		ug/L		NC	20
Endosulfan II (Beta)	ND		ND		ug/L		NC	20
Endosulfan sulfate	ND		ND		ug/L		NC	20
Endrin	ND		ND		ug/L		NC	20
Endrin aldehyde	ND		ND		ug/L		NC	20

Eurofins Eaton Monrovia



# QC Sample Results

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

Job ID: 380-32804-1

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

**Lab Sample ID: 380-32810-Q-1-A DU**  
**Matrix: Water**  
**Analysis Batch: 28759**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 28602**

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

Surrogate	DU %Recovery	DU Qualifier	Limits
2-Nitro-m-xylene	102		70 - 130
Triphenylphosphate	119		70 - 130
Perylene-d12	87		70 - 130

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

**Lab Sample ID: 103112-B1**  
**Matrix: BlankMatrix**  
**Analysis Batch: O-40076**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: O-40076\_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/08/23 19:50	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/08/23 19:50	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/08/23 19:50	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/08/23 19:50	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/08/23 19:50	1
Acenaphthene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/08/23 19:50	1
Acenaphthylene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/08/23 19:50	1

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# QC Sample Results

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

Job ID: 380-32804-1

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

**Lab Sample ID: 103112-B1**  
**Matrix: BlankMatrix**  
**Analysis Batch: O-40076**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: O-40076\_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Anthracene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/08/23 19:50	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/08/23 19:50	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/08/23 19:50	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/08/23 19:50	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/08/23 19:50	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/08/23 19:50	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/08/23 19:50	1
Biphenyl	ND		0.005	0.001	µg/L		01/03/23 00:00	01/08/23 19:50	1
Chrysene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/08/23 19:50	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/08/23 19:50	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/08/23 19:50	1
Dibenzothiophene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/08/23 19:50	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		01/03/23 00:00	01/08/23 19:50	1
Fluoranthene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/08/23 19:50	1
Fluorene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/08/23 19:50	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/08/23 19:50	1
Naphthalene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/08/23 19:50	1
Perylene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/08/23 19:50	1
Phenanthrene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/08/23 19:50	1
Pyrene	ND		0.005	0.001	µg/L		01/03/23 00:00	01/08/23 19:50	1

Surrogate	Blank %Recovery	Blank Qualifier	Limits	Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	89		27 - 133	01/03/23 00:00	01/08/23 19:50	1
(d10-Phenanthrene)	92		43 - 129	01/03/23 00:00	01/08/23 19:50	1
(d12-Chrysene)	100		52 - 144	01/03/23 00:00	01/08/23 19:50	1
(d12-Perylene)	98		36 - 161	01/03/23 00:00	01/08/23 19:50	1
(d8-Naphthalene)	84		25 - 125	01/03/23 00:00	01/08/23 19:50	1

**Lab Sample ID: 103112-BS1**  
**Matrix: BlankMatrix**  
**Analysis Batch: O-40076**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: O-40076\_P**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
1-Methylnaphthalene	0.5	0.459		µg/L		92	31 - 128
1-Methylphenanthrene	0.5	0.443		µg/L		89	66 - 127
2,3,5-Trimethylnaphthalene	0.5	0.501		µg/L		100	55 - 122
2,6-Dimethylnaphthalene	0.5	0.487		µg/L		97	48 - 120
2-Methylnaphthalene	1.5	1.43		µg/L		95	47 - 130
Acenaphthene	1.5	1.51		µg/L		101	53 - 131
Acenaphthylene	1.5	1.52		µg/L		101	43 - 140
Anthracene	1.5	1.53		µg/L		102	58 - 135
Benz[a]anthracene	1.5	1.6		µg/L		107	55 - 145
Benzo[a]pyrene	1.5	1.56		µg/L		104	51 - 143
Benzo[b]fluoranthene	1.5	1.68		µg/L		112	46 - 165
Benzo[e]pyrene	0.5	0.513		µg/L		103	42 - 152
Benzo[g,h,i]perylene	1.5	1.59		µg/L		106	63 - 133
Benzo[k]fluoranthene	1.5	1.51		µg/L		101	56 - 145
Biphenyl	0.5	0.524		µg/L		105	56 - 119

Eurofins Eaton Monrovia

# QC Sample Results

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

Job ID: 380-32804-1

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

**Lab Sample ID: 103112-BS1**  
**Matrix: BlankMatrix**  
**Analysis Batch: O-40076**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: O-40076\_P**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	
Chrysene	1.5	1.52		µg/L		101	56 - 141	
Dibenz[a,h]anthracene	1.5	1.6		µg/L		107	55 - 150	
Dibenzo[a,l]pyrene	0.5	0.46		µg/L		92	50 - 150	
Dibenzothiophene	0.5	0.454		µg/L		91	46 - 126	
Disalicylidenepranediamine	50	48.6		µg/L		97	50 - 150	
Fluoranthene	1.5	1.69		µg/L		113	60 - 146	
Fluorene	1.5	1.59		µg/L		106	58 - 131	
Indeno[1,2,3-cd]pyrene	1.5	1.56		µg/L		104	50 - 151	
Naphthalene	1.5	1.42		µg/L		95	41 - 126	
Perylene	0.5	0.468		µg/L		94	48 - 141	
Phenanthrene	1.5	1.57		µg/L		105	67 - 127	
Pyrene	1.5	1.62		µg/L		108	54 - 156	

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
(d10-Acenaphthene)	90		27 - 133
(d10-Phenanthrene)	93		43 - 129
(d12-Chrysene)	97		52 - 144
(d12-Perylene)	94		36 - 161
(d8-Naphthalene)	83		25 - 125

**Lab Sample ID: 103112-BS2**  
**Matrix: BlankMatrix**  
**Analysis Batch: O-40076**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: O-40076\_P**

Analyte	Spike Added	LCS DUP Result	LCS DUP Qualifier	Unit	D	%Rec	%Rec Limits		RPD	RPD Limit
1-Methylnaphthalene	0.5	0.465		µg/L		93	31 - 128	1	30	
1-Methylphenanthrene	0.5	0.439		µg/L		88	66 - 127	1	30	
2,3,5-Trimethylnaphthalene	0.5	0.494		µg/L		99	55 - 122	1	30	
2,6-Dimethylnaphthalene	0.5	0.479		µg/L		96	48 - 120	1	30	
2-Methylnaphthalene	1.5	1.39		µg/L		93	47 - 130	2	30	
Acenaphthene	1.5	1.47		µg/L		98	53 - 131	3	30	
Acenaphthylene	1.5	1.5		µg/L		100	43 - 140	1	30	
Anthracene	1.5	1.53		µg/L		102	58 - 135	0	30	
Benz[a]anthracene	1.5	1.56		µg/L		104	55 - 145	3	30	
Benzo[a]pyrene	1.5	1.51		µg/L		101	51 - 143	3	30	
Benzo[b]fluoranthene	1.5	1.61		µg/L		107	46 - 165	5	30	
Benzo[e]pyrene	0.5	0.498		µg/L		100	42 - 152	3	30	
Benzo[g,h,i]perylene	1.5	1.57		µg/L		105	63 - 133	1	30	
Benzo[k]fluoranthene	1.5	1.48		µg/L		99	56 - 145	2	30	
Biphenyl	0.5	0.514		µg/L		103	56 - 119	2	30	
Chrysene	1.5	1.47		µg/L		98	56 - 141	3	30	
Dibenz[a,h]anthracene	1.5	1.53		µg/L		102	55 - 150	5	30	
Dibenzo[a,l]pyrene	0.5	0.507		µg/L		101	50 - 150	9	30	
Dibenzothiophene	0.5	0.456		µg/L		91	46 - 126	0	30	
Disalicylidenepranediamine	50	52		µg/L		104	50 - 150	7	30	
Fluoranthene	1.5	1.68		µg/L		112	60 - 146	1	30	
Fluorene	1.5	1.58		µg/L		105	58 - 131	1	30	
Indeno[1,2,3-cd]pyrene	1.5	1.59		µg/L		106	50 - 151	2	30	

Eurofins Eaton Monrovia

# QC Sample Results

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

Job ID: 380-32804-1

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

**Lab Sample ID: 103112-BS2**  
**Matrix: BlankMatrix**  
**Analysis Batch: O-40076**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: O-40076\_P**

Analyte	Spike Added	LCS DUP Result	LCS DUP Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Naphthalene	1.5	1.38		µg/L		92	41 - 126	3	30
Perylene	0.5	0.448		µg/L		90	48 - 141	4	30
Phenanthrene	1.5	1.55		µg/L		103	67 - 127	1	30
Pyrene	1.5	1.62		µg/L		108	54 - 156	0	30

Surrogate	LCS DUP %Recovery	LCS DUP Qualifier	Limits
(d10-Acenaphthene)	89		27 - 133
(d10-Phenanthrene)	93		43 - 129
(d12-Chrysene)	95		52 - 144
(d12-Perylene)	99		36 - 161
(d8-Naphthalene)	82		25 - 125

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

**Lab Sample ID: 22VGH7A01B**  
**Matrix: WATER**  
**Analysis Batch: 23VGH7A01**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GASOLINE	ND	U	0.020		mg/L			01/03/23 13:00	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
BROMOFLUOROBENZENE					01/03/23 13:00	1

**Lab Sample ID: 22VGH7A01L**  
**Matrix: WATER**  
**Analysis Batch: 23VGH7A01**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
GASOLINE	0.500	0.453		mg/L		91	60 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
BROMOFLUOROBENZENE	118		70 - 130

**Lab Sample ID: 22L316-01M**  
**Matrix: WATER**  
**Analysis Batch: 23VGH7A01**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
GASOLINE	ND		0.500	0.408		mg/L		82	50 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
BROMOFLUOROBENZENE	102		60 - 140

# QC Sample Results

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

Job ID: 380-32804-1

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

Lab Sample ID: 22L316-01S  
Matrix: WATER  
Analysis Batch: 23VGH7A01

Client Sample ID: Matrix Spike Duplicate  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
GASOLINE	ND		0.500	0.458		mg/L		92	50 - 130	12	30
<b>Surrogate</b>	<b>%Recovery</b>	<b>MSD Qualifier</b>	<b>MSD Limits</b>								
BROMOFLUOROBENZENE	108		60 - 140								

## Method: 8015 LL DRO/MRO/JP5/JP8 - 8015 - TPH DRO/ORO

Lab Sample ID: 22DSA006WB  
Matrix: WATER  
Analysis Batch: 23DSA006W

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			01/06/23 03:32	1
JP5	ND	U	0.050		mg/L			01/06/23 03:32	1
JP8	ND	U	0.050		mg/L			01/06/23 03:32	1
MOTOR OIL	ND	U	0.050		mg/L			01/06/23 03:32	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>MB Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
BROMOBENZENE								01/06/23 03:32	1
HEXACOSANE								01/06/23 03:32	1

Lab Sample ID: 22DSA006WL  
Matrix: WATER  
Analysis Batch: 23DSA006W

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
DIESEL	2.50	2.64		mg/L		106	50 - 130
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>LCS Limits</b>				
BROMOBENZENE	107		60 - 130				
HEXACOSANE	122		60 - 130				

Lab Sample ID: 22J5A006WL  
Matrix: WATER  
Analysis Batch: 23DSA006W

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
JP5	2.50	2.47		mg/L		99	30 - 160
<b>Surrogate</b>	<b>%Recovery</b>	<b>LCS Qualifier</b>	<b>LCS Limits</b>				
BROMOBENZENE	93		60 - 130				
HEXACOSANE	117		60 - 130				



# QC Association Summary

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

Job ID: 380-32804-1

## GC/MS Semi VOA

### Prep Batch: 28602

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-32804-1	MOANALUA WELLS	Total/NA	Drinking Water	525.2	
MB 380-28602/1-A	Method Blank	Total/NA	Water	525.2	
LCS 380-28602/3-A	Lab Control Sample	Total/NA	Water	525.2	
LCSD 380-28602/4-A	Lab Control Sample Dup	Total/NA	Water	525.2	
MRL 380-28602/2-A	Lab Control Sample	Total/NA	Water	525.2	
380-32809-B-1-A MS	Matrix Spike	Total/NA	Water	525.2	
380-32810-Q-1-A DU	Duplicate	Total/NA	Water	525.2	

### Analysis Batch: 28759

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-32804-1	MOANALUA WELLS	Total/NA	Drinking Water	525.2	28602
MB 380-28602/1-A	Method Blank	Total/NA	Water	525.2	28602
LCS 380-28602/3-A	Lab Control Sample	Total/NA	Water	525.2	28602
LCSD 380-28602/4-A	Lab Control Sample Dup	Total/NA	Water	525.2	28602
MRL 380-28602/2-A	Lab Control Sample	Total/NA	Water	525.2	28602
380-32809-B-1-A MS	Matrix Spike	Total/NA	Water	525.2	28602
380-32810-Q-1-A DU	Duplicate	Total/NA	Water	525.2	28602

## Subcontract

### Analysis Batch: O-40076

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-32804-1	MOANALUA WELLS	Total/NA	Drinking Water	625 PAH Physis LL (EAL) + TICs	O-40076_P
103112-B1	Method Blank	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-40076_P
103112-BS1	Lab Control Sample	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-40076_P
103112-BS2	Lab Control Sample Dup	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-40076_P

### Analysis Batch: 22DSA006W

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
22J8A006WL	Lab Control Sample	Total/NA	WATER	8015 LL DRO/MRO/JP5/J P8	

### Analysis Batch: 23DSA006W

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-32804-1	MOANALUA WELLS	Total/NA	Drinking Water	8015 LL DRO/MRO/JP5/J P8	
22DSA006WB	Method Blank	Total/NA	WATER	8015 LL DRO/MRO/JP5/J P8	
22DSA006WL	Lab Control Sample	Total/NA	WATER	8015 LL DRO/MRO/JP5/J P8	
22J5A006WL	Lab Control Sample	Total/NA	WATER	8015 LL DRO/MRO/JP5/J P8	

# QC Association Summary

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

Job ID: 380-32804-1

## Subcontract

### Analysis Batch: 23VGH7A01

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-32804-1	MOANALUA WELLS	Total/NA	Drinking Water	8015 Gas (Purgeable) LL (EAL)	
380-32804-2	TB MOANALUA WELLS	Total/NA	Drinking Water	8015 Gas (Purgeable) LL (EAL)	
22VGH7A01B	Method Blank	Total/NA	WATER	8015 Gas (Purgeable) LL (EAL)	
22VGH7A01L	Lab Control Sample	Total/NA	WATER	8015 Gas (Purgeable) LL (EAL)	
22L316-01M	Matrix Spike	Total/NA	WATER	8015 Gas (Purgeable) LL (EAL)	
22L316-01S	Matrix Spike Duplicate	Total/NA	WATER	8015 Gas (Purgeable) LL (EAL)	

### Prep Batch: O-40076\_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-32804-1	MOANALUA WELLS	Total/NA	Drinking Water	EPA_625	
103112-B1	Method Blank	Total/NA	BlankMatrix	EPA_625	
103112-BS1	Lab Control Sample	Total/NA	BlankMatrix	EPA_625	
103112-BS2	Lab Control Sample Dup	Total/NA	BlankMatrix	EPA_625	



# Lab Chronicle

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

Job ID: 380-32804-1

## Client Sample ID: MOANALUA WELLS

Lab Sample ID: 380-32804-1

Date Collected: 12/27/22 11:25

Matrix: Drinking Water

Date Received: 12/29/22 10:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	525.2			28602	OTM3	EA MON	01/03/23 07:51
Total/NA	Analysis	525.2		1	28759	Q8LA	EA MON	01/04/23 14:44
Total/NA	Prep	EPA_625		1	O-40076_P			01/03/23 00:00
Total/NA	Analysis	625 PAH Physis LL (EAL) + TICs		1	O-40076	YC		01/09/23 01:04
Total/NA	Analysis	8015 Gas (Purgeable) LL (EAL)		1	23VGH7A01	SCerva		01/03/23 18:36
Total/NA	Analysis	8015 LL DRO/MRO/JP5/JP8		1	23DSA006W	SDees		01/06/23 05:40

## Client Sample ID: TB MOANALUA WELLS

Lab Sample ID: 380-32804-2

Date Collected: 12/27/22 11:25

Matrix: Drinking Water

Date Received: 12/29/22 10:10

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	23VGH7A01	SCerva		01/03/23 20:28

**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: 380-32804-1

## 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	01-08-23

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

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

# Accreditation/Certification Summary

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

Job ID: 380-32804-1

## Laboratory: Eurofins Eaton Monrovia (Continued)

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

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

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



# Method Summary

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

Job ID: 380-32804-1

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: 380-32804-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	PWSID Number
380-32804-1	MOANALUA WELLS	Drinking Water	12/27/22 11:25	12/29/22 10:10	HI0000331
380-32804-2	TB MOANALUA WELLS	Drinking Water	12/27/22 11:25	12/29/22 10:10	

- 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: 01-20-2023  
 EMAX Batch No.: 22L316

Attn: Jackie Contreras

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

Subject: Laboratory Report  
 Project: 380-32804

Enclosed is the Laboratory report for samples received on 12/30/22.  
 The data reported relate only to samples listed below :

Sample ID	Control #	Col Date	Matrix	Analysis
380-32804-1	L316-01	12/27/22	WATER	TPH GASOLINE TPH
380-32804-2	L316-02	12/27/22	WATER	TPH GASOLINE
380-32804-1MS	L316-01M	12/27/22	WATER	TPH GASOLINE
380-32804-1MSD	L316-01S	12/27/22	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

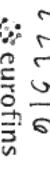


**Monrovia, CA (Suite 100)**  
 750 Royal Oaks Drive Suite 100  
 Monrovia, CA 91016  
 Phone: 626-386-1100

**Chain of Custody Record**



221316



Environment Testing

<b>Client Information (Sub Contract Lab)</b>		Sampler:	Lab PIN:	Carrier Tracking No(s):	COG No:
Client Contact: Rachelle Arada, Rachelle		Phone:	Rachelle.Arada@eurofins.com	State of Origin: Hawaii	380-32259.1
Shipping/Receiving Company: EMAX Laboratories Inc		Accreditations Required (See note):	State - Hawaii	Page: 1 of 1	Page: 1 of 1
Address: 3051 Fujita Street,		Due Date Requested:	1/13/2023	Job #:	380-32804-1
City: Torrance		TAT Requested (days):		<b>Preservation Codes:</b>	
State, Zip: CA, 90505		PO #:		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Ammonia H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA M - Hexane N - None O - AsNaO2 P - Na2OAS Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecylhydrate U - Acetone V - MCAA W - pH 4.5 Y - Trizma Z - other (specify)	
Project Name: RED HILL		Project #:	38001111	Other:	
Site: Honolulu BWS Sites		SSOV#:			
<b>Sample Identification - Client ID (Lab ID)</b>					
MOANALLUA WELLS (380-32804-1)	12/27/22	11:25	Hawaiian	Water	6
TB MOANALLUA WELLS (380-32804-2)	12/27/22	11:25	Hawaiian	Water	2
<b>Field Filtered Sample (Yes or No)</b>					
<input checked="" type="checkbox"/> Perform MS/MSD (Yes or No)					
SUB (8015 Gas (Purgeable) LL (EAL)) 8015 Gas (Purgeable) LL (EAL)					
SUB (8015 LL DRO/MRO/JP5/JP8) 8015 LL DRO/MRO/JP5/JP8					
<b>Special Instructions/Note:</b>					
See Attached Instructions					
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 subcontracted laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/matrix being analyzed, the samples must be shipped back to the Eurofins Eaton Analytical, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Eaton Analytical, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Eaton Analytical, LLC.

**Possible Hazard Identification**

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

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

Special Instructions/IOC Requirements:

Empty Kit Relinquished by:	Date/Time:	Company:	Received by:	Method:	Shipment:
Relinquished by: <i>Chris Beck</i>	12/30/22 10:00	EBB	<i>A</i>		12/30
Relinquished by:	Date/Time:	Company:	Received by:		
Relinquished by: <i>A</i>	11/11/22 15:30		<i>Ben</i>		12/30/22 15:30

Custody Seal Intact:  Yes  No  
 Custody Seal No.:



Type of Delivery <input type="checkbox"/> Fedex <input type="checkbox"/> UPS <input type="checkbox"/> GSO <input type="checkbox"/> Others <input type="checkbox"/> EMAX Courier <input checked="" type="checkbox"/> Client Delivery	Airbill / Tracking Number	ECN <u>22L314</u> Recipient <u>Diem M</u> Date <u>12/30/22</u> Time <u>15:30</u>
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**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 type="checkbox"/> Courier Signature	<input checked="" type="checkbox"/> Analysis Required	<input type="checkbox"/> Preservative (if any)	<input checked="" type="checkbox"/> TAT
Safety Issues (if any) Note:	<input type="checkbox"/> High concentrations expected	<input type="checkbox"/> From Superfund Site	<input type="checkbox"/> Rad screening required		

**PACKAGING INSPECTION**

Container	<input checked="" type="checkbox"/> Cooler	<input type="checkbox"/> Box	<input type="checkbox"/> Other
Condition <u>Correction factor -0.2</u>	<input type="checkbox"/> Custody Seal	<input type="checkbox"/> Intact	<input type="checkbox"/> Damaged
Packaging	<input checked="" type="checkbox"/> Bubble Pack	<input type="checkbox"/> Styrofoam	<input type="checkbox"/> Popcorn
Temperatures (Cool, ≤6°C but not frozen)	<input checked="" type="checkbox"/> Cooler 1 <u>1.0/1.4</u> °C	<input type="checkbox"/> Cooler 2 _____ °C	<input type="checkbox"/> Cooler 3 _____ °C
Thermometer: <u>A - S/N _____</u>	<input type="checkbox"/> Cooler 6 _____ °C	<input type="checkbox"/> Cooler 7 _____ °C	<input type="checkbox"/> Cooler 8 _____ °C
	<input checked="" type="checkbox"/> B - S/N <u>210740237</u>	<input type="checkbox"/> 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	516	02	JP5/JP6 not indicated on label	R8
2	710	07	two dates listed - 12/19/22 & 12/27/22	R1
<i>[Large diagonal scribble across the table]</i>				

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: \* OUT of HT if collected 12/19/22.

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 \_\_\_\_\_
- 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+1min
- R6 Adjust pH as necessary
- R7 Filter and preserve as necessary
- R8 Informed Client
- R9 \_\_\_\_\_
- R10 \_\_\_\_\_
- R11 \_\_\_\_\_
- R12 \_\_\_\_\_

REVIEWS:

Sample Labeling

Date 01/03/23

SRF

Date 12/30/22

PM

Date 1/4/23

REPORT ID: 22L316



## 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

380-32804

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

SDG#: 22L316



CASE NARRATIVE

Client : EUROFINS EATON ANALYTICAL

Project: 380-32804

SDG : 22L316

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

A total of two(2) water samples were received on 12/30/22 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. VGH7A01B - 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. VGH7A01L/VGH7A01C 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 L316-01M/L316-01S. Refer to Matrix QC summary form for details.

Surrogate

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

Sample Analysis

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



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# SAMPLE RESULTS

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

Client : EUROFINS EATON ANALYTICAL	Date Collected: 12/27/22 11:25
Project : 380-32804	Date Received: 12/30/22
Batch No. : 22L316	Date Extracted: 01/03/23 18:36
Sample ID : 380-32804-1	Date Analyzed: 01/03/23 18:36
Lab Samp ID: L316-01	Dilution Factor: 1
Lab File ID: AA03014A	Matrix: WATER
Ext Btch ID: 23VGH7A01	% Moisture: NA
Calib. Ref.: AA03013A	Instrument ID: H7

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)	
GASOLINE	ND	0.020	0.010	
SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromofluorobenzene	0.0361	0.0400	90	60-140

Notes:

Parameter      H-C Range  
Gasoline        C6-C10

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

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



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# QC SUMMARIES





EMAX QUALITY CONTROL DATA  
LAB CONTROL SAMPLE ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL  
PROJECT : 380-32804  
BATCH NO. : 22L316  
METHOD : 5030B/8015B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR:	1	1	1
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: VGH7A01B	VGH7A01L	VGH7A01C
LAB FILE ID	: AA03005A	AA03006A	AA03007A
DATE PREPARED	: 01/03/23 13:00	01/03/23 13:37	01/03/23 14:15
DATE ANALYZED	: 01/03/23 13:00	01/03/23 13:37	01/03/23 14:15
PREP BATCH	: 23VGH7A01	23VGH7A01	23VGH7A01
CALIBRATION REF:	AA03004A	AA03004A	AA03004A

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	0.453	91	0.500	0.419	84	8	60-130	30

SURROGATE PARAMETER	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	QCLimit (%)
Bromofluorobenzene	0.0400	0.0470	118	0.0400	0.0408	102	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 : 380-32804  
BATCH NO. : 22L316  
METHOD : 5030B/8015B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR:	1	1	1
SAMPLE ID	: 380-32804-1	380-32804-1MS	380-32804-1MSD
LAB SAMPLE ID	: L316-01	L316-01M	L316-01S
LAB FILE ID	: AA03014A	AA03015A	AA03016A
DATE PREPARED	: 01/03/23 18:36	01/03/23 19:13	01/03/23 19:51
DATE ANALYZED	: 01/03/23 18:36	01/03/23 19:13	01/03/23 19:51
PREP BATCH	: 23VGH7A01	23VGH7A01	23VGH7A01
CALIBRATION REF:	AA03013A	AA03013A	AA03013A

ACCESSION:

PARAMETERS	PSResult (mg/L)	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Gasoline	ND	0.500	0.408	82	0.500	0.458	92	12	50-130	30

SURROGATE PARAMETER	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	QCLimit (%)
Bromofluorobenzene	0.0400	0.0406	102	0.0400	0.0431	108	60-140

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

LABORATORY REPORT FOR

EUROFINS EATON ANALYTICAL

380-32804

METHOD 3520C/8015B  
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

SDG#: 22L316



CASE NARRATIVE

Client : EUROFINS EATON ANALYTICAL

Project: 380-32804

SDG : 22L316

METHOD 3520C/8015B  
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

One(1) water sample was received on 12/30/22 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. DSA006WB - 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. DSA006WL/DSA006WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample

No matrix QC sample was provided on this SDG.

Surrogate

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

Sample Analysis

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

CASE NARRATIVE

Client : EUROFINS EATON ANALYTICAL

Project: 380-32804

SDG : 22L316

METHOD 3520C/8015B  
PETROLEUM HYDROCARBONS BY EXTRACTION

One(1) water sample was received on 12/30/22 to be analyzed for 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. DSA006WB - 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. J5A006WL/J5A006WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample

No matrix QC sample was provided on this SDG.

Surrogate

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

Sample Analysis

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

CASE NARRATIVE

Client : EUROFINS EATON ANALYTICAL

Project: 380-32804

SDG : 22L316

METHOD 3520C/8015B  
PETROLEUM HYDROCARBONS BY EXTRACTION

One(1) water sample was received on 12/30/22 to be analyzed for 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. DSA006WB - 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. J8A006WL/J8A006WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample

No matrix QC sample was provided on this SDG.

Surrogate

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

Sample Analysis

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









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# SAMPLE RESULTS

METHOD 3520C/8015B  
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: EUROFINS EATON ANALYTICAL	Date Collected:	12/27/22 11:25
Project	: 380-32804	Date Received:	12/30/22
Batch No.	: 22L316	Date Extracted:	01/04/23 15:00
Sample ID	: 380-32804-1	Date Analyzed:	01/06/23 05:40
Lab Samp ID:	22L316-01	Dilution Factor:	1
Lab File ID:	LA05057A	Matrix:	WATER
Ext Btch ID:	23DSA006W	% Moisture:	NA
Calib. Ref.:	LA05047A	Instrument ID:	D5

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Diesel	ND	0.028	0.014
Motor Oil	ND	0.056	0.028

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.456	0.555	82	60-130
Hexacosane	0.162	0.139	117	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 : 900ml Final Volume : 5ml  
Prepared by : RVilla/POreto Analyzed by : SDeeso

METHOD 3520C/8015B  
 PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: EUROFINS EATON ANALYTICAL	Date Collected:	12/27/22 11:25
Project	: 380-32804	Date Received:	12/30/22
Batch No.	: 22L316	Date Extracted:	01/04/23 15:00
Sample ID	: 380-32804-1	Date Analyzed:	01/06/23 05:40
Lab Samp ID:	22L316-01	Dilution Factor:	1
Lab File ID:	LA05057A	Matrix:	WATER
Ext Btch ID:	23DSA006W	% Moisture:	NA
Calib. Ref.:	LA05048A	Instrument ID:	D5

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
JP5	ND	0.056	0.028

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.456	0.555	82	60-130
Hexacosane	0.162	0.139	117	60-130

Notes:

RL : Reporting Limit

Parameter H-C Range

JP5 C8-C18

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

Sample Amount : 900ml

Final Volume : 5ml

Prepared by : RVilla/P0reto

Analyzed by : SDeeso

METHOD 3520C/8015B  
 PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: EUROFINS EATON ANALYTICAL	Date Collected:	12/27/22 11:25
Project	: 380-32804	Date Received:	12/30/22
Batch No.	: 22L316	Date Extracted:	01/04/23 15:00
Sample ID	: 380-32804-1	Date Analyzed:	01/06/23 05:40
Lab Samp ID:	22L316-01	Dilution Factor:	1
Lab File ID:	LA05057A	Matrix:	WATER
Ext Btch ID:	23DSA006W	% Moisture:	NA
Calib. Ref.:	LA05049A	Instrument ID:	D5

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
JP8	ND	0.056	0.028

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.456	0.555	82	60-130
Hexacosane	0.162	0.139	117	60-130

Notes:

RL : Reporting Limit

Parameter H-C Range

JP8 C8-C18

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

Sample Amount : 900ml

Final Volume : 5ml

Prepared by : RVilla/P0reto

Analyzed by : SDeeso

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# QC SUMMARIES

METHOD 3520C/8015B  
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: EUROFINS EATON ANALYTICAL	Date Collected:	01/04/23 15:00
Project	: 380-32804	Date Received:	01/04/23
Batch No.	: 22L316	Date Extracted:	01/04/23 15:00
Sample ID	: MBLK1W	Date Analyzed:	01/06/23 03:32
Lab Samp ID:	DSA006WB	Dilution Factor:	1
Lab File ID:	LA05050A	Matrix:	WATER
Ext Btch ID:	23DSA006W	% Moisture:	NA
Calib. Ref.:	LA05047A	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	0.415	0.500	83	60-130
Hexacosane	0.146	0.125	117	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 : RVilla/P0reto Analyzed by : SDeeso



EMAX QUALITY CONTROL DATA  
LAB CONTROL SAMPLE ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL  
PROJECT : 380-32804  
BATCH NO. : 22L316  
METHOD : 3520C/8015B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR:	1	1	1
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: DSA006WB	DSA006WL	DSA006WC
LAB FILE ID	: LA05050A	LA05051A	LA05052A
DATE PREPARED	: 01/04/23 15:00	01/04/23 15:00	01/04/23 15:00
DATE ANALYZED	: 01/06/23 03:32	01/06/23 03:50	01/06/23 04:08
PREP BATCH	: 23DSA006W	23DSA006W	23DSA006W
CALIBRATION REF:	LA05047A	LA05047A	LA05047A

ACCESSION:

PARAMETERS	MBResult (mg/L)	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	RPD (%)	QLLimit (%)	MaxRPD (%)
Diesel	ND	2.50	2.64	106	2.50	2.81	112	6	50-130	30

SURROGATE PARAMETERS	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	QLLimit (%)
Bromobenzene	0.500	0.533	107	0.500	0.492	98	60-130
Hexacosane	0.125	0.153	122	0.125	0.143	114	60-130

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

METHOD 3520C/8015B  
 PETROLEUM HYDROCARBONS BY EXTRACTION

Client : EUROFINS EATON ANALYTICAL	Date Collected: 01/04/23 15:00
Project : 380-32804	Date Received: 01/04/23
Batch No. : 22L316	Date Extracted: 01/04/23 15:00
Sample ID : MBLK1W	Date Analyzed: 01/06/23 03:32
Lab Samp ID: DSA006WB	Dilution Factor: 1
Lab File ID: LA05050A	Matrix: WATER
Ext Btch ID: 23DSA006W	% Moisture: NA
Calib. Ref.: LA05048A	Instrument ID: D5

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
JP5	ND	0.050	0.025

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.415	0.500	83	60-130
Hexacosane	0.146	0.125	117	60-130

Notes:

RL : Reporting Limit

Parameter H-C Range

JP5 C8-C18

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 : RVilla/POreto

Analyzed by : SDeeso

EMAX QUALITY CONTROL DATA  
LAB CONTROL SAMPLE ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL  
PROJECT : 380-32804  
BATCH NO. : 22L316  
METHOD : 3520C/8015B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR:	1	1	1
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: DSA006WB	J5A006WL	J5A006WC
LAB FILE ID	: LA05050A	LA05053A	LA05054A
DATE PREPARED	: 01/04/23 15:00	01/04/23 15:00	01/04/23 15:00
DATE ANALYZED	: 01/06/23 03:32	01/06/23 04:27	01/06/23 04:45
PREP BATCH	: 23DSA006W	23DSA006W	23DSA006W
CALIBRATION REF:	LA05048A	LA05048A	LA05048A

ACCESSION:

PARAMETERS	MBResult (mg/L)	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
JP5	ND	2.50	2.47	99	2.50	2.04	82	19	30-160	30

SURROGATE PARAMETERS	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	QCLimit (%)
Bromobenzene	0.500	0.467	93	0.500	0.396	79	60-130
Hexacosane	0.125	0.146	117	0.125	0.137	110	60-130

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

METHOD 3520C/8015B  
 PETROLEUM HYDROCARBONS BY EXTRACTION

Client : EUROFINS EATON ANALYTICAL	Date Collected: 01/12/22 14:00
Project : 380-32804	Date Received: 01/12/22
Batch No. : 22L316	Date Extracted: 01/12/22 14:00
Sample ID : MBLK1W	Date Analyzed: 01/06/23 03:32
Lab Samp ID: DSA006WB	Dilution Factor: 1
Lab File ID: LA05050A	Matrix: WATER
Ext Btch ID: 22DSA006W	% Moisture: NA
Calib. Ref.: LA05049A	Instrument ID: D5

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
JP8	ND	0.050	0.025

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.415	0.500	83	60-130
Hexacosane	0.146	0.125	117	60-130

Notes:

RL : Reporting Limit

Parameter H-C Range

JP8 C8-C18

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 : 380-32804  
BATCH NO. : 22L316  
METHOD : 3520C/8015B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR:	1	1	1
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: DSA006WB	J8A006WL	J8A006WC
LAB FILE ID	: LA05050A	LA05055A	LA05056A
DATE PREPARED	: 01/12/22 14:00	01/12/22 14:00	01/04/23 15:00
DATE ANALYZED	: 01/06/23 03:32	01/06/23 05:03	01/06/23 05:22
PREP BATCH	: 22DSA006W	22DSA006W	23DSA006W
CALIBRATION REF:	LA05049A	LA05049A	LA05049A

ACCESSION:

PARAMETERS	MBResult (mg/L)	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
JP8	ND	2.50	2.54	102	2.50	2.13	85	18	30-160	30

SURROGATE PARAMETERS	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	QCLimit (%)
Bromobenzene	0.500	0.487	97	0.500	0.488	98	60-130
Hexacosane	0.125	0.145	116	0.125	0.138	110	60-130

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

January 09, 2023

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

Project Name: RED-HILL Project # 38001111 Job # 380-32804-1  
Physis Project ID: 1407003-353

Dear Rosalynn,


Enclosed are the analytical results for the sample submitted to PHYSIS Environmental Laboratories, Inc. (PHYSIS) on 12/30/2022. 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: 1407003-353

RED-HILL Project # 38001111 Job # 380-32804-1

Total Samples: 1

PHYSIS ID	Sample ID	Description	Date	Time	Matrix	Sample Type
103113	MOANALUA WELLS	380-32804-1	12/27/2022	11:25	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 MS<sub>1</sub>/MS<sub>2</sub>, BS<sub>1</sub>/BS<sub>2</sub>, LCS<sub>1</sub>/LCS<sub>2</sub>, LCM<sub>1</sub>/LCM<sub>2</sub>, CRM<sub>1</sub>/CRM<sub>2</sub>, surrogate spikes and/or replicate project sample analysis (R<sub>1</sub>/R<sub>2</sub>) 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

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## CASE NARRATIVE

### QUALIFIER NOTES

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

#### **ND**

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

# BIANALYTICALS

## REPORT

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## Base/Neutral Extractable Compounds

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
<b>Sample ID: 103113-R1</b>	<b>MOANALUA WELLS 380-32804-1</b>		<b>Matrix: Samplewater</b>				<b>Sampled: 27-Dec-22 11:25</b>			<b>Received: 30-Dec-22</b>	
Disalicylidenepropanediamine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-40076	03-Jan-23	09-Jan-23



## Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
<b>Sample ID: 103113-R1</b>	<b>MOANALUA WELLS 380-32804-1</b>	<b>Matrix: Samplewater</b>					<b>Sampled: 27-Dec-22 11:25</b>			<b>Received: 30-Dec-22</b>	
(d10-Acenaphthene)	EPA 625.1	% Recovery	85	1			Total		O-40076	03-Jan-23	09-Jan-23
(d10-Phenanthrene)	EPA 625.1	% Recovery	92	1			Total		O-40076	03-Jan-23	09-Jan-23
(d12-Chrysene)	EPA 625.1	% Recovery	99	1			Total		O-40076	03-Jan-23	09-Jan-23
(d12-Perylene)	EPA 625.1	% Recovery	96	1			Total		O-40076	03-Jan-23	09-Jan-23
(d8-Naphthalene)	EPA 625.1	% Recovery	74	1			Total		O-40076	03-Jan-23	09-Jan-23
1-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40076	03-Jan-23	09-Jan-23
1-Methylphenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40076	03-Jan-23	09-Jan-23
2,3,5-Trimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40076	03-Jan-23	09-Jan-23
2,6-Dimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40076	03-Jan-23	09-Jan-23
2-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40076	03-Jan-23	09-Jan-23
Acenaphthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40076	03-Jan-23	09-Jan-23
Acenaphthylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40076	03-Jan-23	09-Jan-23
Anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40076	03-Jan-23	09-Jan-23
Benz[a]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40076	03-Jan-23	09-Jan-23
Benzo[a]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40076	03-Jan-23	09-Jan-23
Benzo[b]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40076	03-Jan-23	09-Jan-23
Benzo[e]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40076	03-Jan-23	09-Jan-23
Benzo[g,h,i]perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40076	03-Jan-23	09-Jan-23
Benzo[k]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40076	03-Jan-23	09-Jan-23
Biphenyl	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40076	03-Jan-23	09-Jan-23
Chrysene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40076	03-Jan-23	09-Jan-23
D benz[a,h]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40076	03-Jan-23	09-Jan-23
D benzo[a,l]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40076	03-Jan-23	09-Jan-23
D benzothiophene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40076	03-Jan-23	09-Jan-23

## 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-40076	03-Jan-23	09-Jan-23
Fluorene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40076	03-Jan-23	09-Jan-23
Indeno[1,2,3-cd]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40076	03-Jan-23	09-Jan-23
Naphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40076	03-Jan-23	09-Jan-23
Perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40076	03-Jan-23	09-Jan-23
Phenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40076	03-Jan-23	09-Jan-23
Pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40076	03-Jan-23	09-Jan-23





# QUALITY CONTROL REPORT

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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	
<b>Sample ID: 103112-B1</b>		<b>QAQC Procedural Blank</b>			<b>Matrix: BlankMatrix</b>		<b>Sampled:</b>		<b>Received:</b>				
		Method: EPA 625.1			Batch ID: O-40076		Prepared: 03-Jan-23		Analyzed: 08-Jan-23				
Disalicylideneprapanediamin	Total	ND	1	0.05	0.1	µg/L							
<b>Sample ID: 103112-BS1</b>		<b>QAQC Procedural Blank</b>			<b>Matrix: BlankMatrix</b>		<b>Sampled:</b>		<b>Received:</b>				
		Method: EPA 625.1			Batch ID: O-40076		Prepared: 03-Jan-23		Analyzed: 08-Jan-23				
Disalicylideneprapanediamin	Total	48.6	1	0.05	0.1	µg/L	50	0	97	50 - 150%	PASS		
<b>Sample ID: 103112-BS2</b>		<b>QAQC Procedural Blank</b>			<b>Matrix: BlankMatrix</b>		<b>Sampled:</b>		<b>Received:</b>				
		Method: EPA 625.1			Batch ID: O-40076		Prepared: 03-Jan-23		Analyzed: 08-Jan-23				
Disalicylideneprapanediamin	Total	52	1	0.05	0.1	µg/L	50	0	104	50 - 150%	PASS	7	30 PASS

## Polynuclear Aromatic Hydrocarbons

## QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY	PRECISION	QA CODE
							LEVEL	RESULT	% LIMITS	% LIMITS	
<b>Sample ID: 103112-B1</b>		<b>QAQC Procedural Blank</b>			<b>Matrix: BlankMatrix</b>		<b>Sampled:</b>		<b>Received:</b>		
		Method: EPA 625.1				Batch ID: O-40076	Prepared: 03-Jan-23		Analyzed: 08-Jan-23		
(d10-Acenaphthene)	Total	89	1			% Recovery	100	89	27 - 133%	PASS	
(d10-Phenanthrene)	Total	92	1			% Recovery	100	92	43 - 129%	PASS	
(d12-Chrysene)	Total	100	1			% Recovery	100	100	52 - 144%	PASS	
(d12-Perylene)	Total	98	1			% Recovery	100	98	36 - 161%	PASS	
(d8-Naphthalene)	Total	84	1			% Recovery	100	84	25 - 125%	PASS	
1-Methylnaphthalene	Total	ND	1	0.001	0.005						µg/L
1-Methylphenanthrene	Total	ND	1	0.001	0.005						µg/L
2,3,5-Trimethylnaphthalene	Total	ND	1	0.001	0.005						µg/L
2,6-Dimethylnaphthalene	Total	ND	1	0.001	0.005						µg/L
2-Methylnaphthalene	Total	ND	1	0.001	0.005						µg/L
Acenaphthene	Total	ND	1	0.001	0.005						µg/L
Acenaphthylene	Total	ND	1	0.001	0.005						µg/L
Anthracene	Total	ND	1	0.001	0.005						µg/L
Benz[a]anthracene	Total	ND	1	0.001	0.005						µg/L
Benzo[a]pyrene	Total	ND	1	0.001	0.005						µg/L
Benzo[b]fluoranthene	Total	ND	1	0.001	0.005						µg/L
Benzo[e]pyrene	Total	ND	1	0.001	0.005						µg/L
Benzo[g,h,i]perylene	Total	ND	1	0.001	0.005						µg/L
Benzo[k]fluoranthene	Total	ND	1	0.001	0.005						µg/L
Biphenyl	Total	ND	1	0.001	0.005						µg/L
Chrysene	Total	ND	1	0.001	0.005						µg/L
Dibenz[a,h]anthracene	Total	ND	1	0.001	0.005						µg/L
Dibenzo[a,l]pyrene	Total	ND	1	0.001	0.005						µg/L
Dibenzothiophene	Total	ND	1	0.001	0.005						µg/L

**Polynuclear Aromatic Hydrocarbons**

**QUALITY CONTROL REPORT**

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



## Polynuclear Aromatic Hydrocarbons

## QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY	PRECISION	QA CODE	
							LEVEL	RESULT	%	LIMITS	%	LIMITS
<b>Sample ID: 103112-BS1</b>		<b>QAQC Procedural Blank</b>			<b>Matrix: BlankMatrix</b>			<b>Sampled:</b>		<b>Received:</b>		
Method: EPA 625.1		Batch ID: O-40076			Prepared: 03-Jan-23		Analyzed: 08-Jan-23					
(d10-Acenaphthene)	Total	90	1			% Recovery	100	0	90	27 - 133%	PASS	
(d10-Phenanthrene)	Total	93	1			% Recovery	100	0	93	43 - 129%	PASS	
(d12-Chrysene)	Total	97	1			% Recovery	100	0	97	52 - 144%	PASS	
(d12-Perylene)	Total	94	1			% Recovery	100	0	94	36 - 161%	PASS	
(d8-Naphthalene)	Total	83	1			% Recovery	100	0	83	25 - 125%	PASS	
1-Methylnaphthalene	Total	0.459	1	0.001	0.005	µg/L	0.5	0	92	31 - 128%	PASS	
1-Methylphenanthrene	Total	0.443	1	0.001	0.005	µg/L	0.5	0	89	66 - 127%	PASS	
2,3,5-Trimethylnaphthalene	Total	0.501	1	0.001	0.005	µg/L	0.5	0	100	55 - 122%	PASS	
2,6-Dimethylnaphthalene	Total	0.487	1	0.001	0.005	µg/L	0.5	0	97	48 - 120%	PASS	
2-Methylnaphthalene	Total	1.43	1	0.001	0.005	µg/L	1.5	0	95	47 - 130%	PASS	
Acenaphthene	Total	1.51	1	0.001	0.005	µg/L	1.5	0	101	53 - 131%	PASS	
Acenaphthylene	Total	1.52	1	0.001	0.005	µg/L	1.5	0	101	43 - 140%	PASS	
Anthracene	Total	1.53	1	0.001	0.005	µg/L	1.5	0	102	58 - 135%	PASS	
Benz[a]anthracene	Total	1.6	1	0.001	0.005	µg/L	1.5	0	107	55 - 145%	PASS	
Benzo[a]pyrene	Total	1.56	1	0.001	0.005	µg/L	1.5	0	104	51 - 143%	PASS	
Benzo[b]fluoranthene	Total	1.68	1	0.001	0.005	µg/L	1.5	0	112	46 - 165%	PASS	
Benzo[e]pyrene	Total	0.513	1	0.001	0.005	µg/L	0.5	0	103	42 - 152%	PASS	
Benzo[g,h,i]perylene	Total	1.59	1	0.001	0.005	µg/L	1.5	0	106	63 - 133%	PASS	
Benzo[k]fluoranthene	Total	1.51	1	0.001	0.005	µg/L	1.5	0	101	56 - 145%	PASS	
Biphenyl	Total	0.524	1	0.001	0.005	µg/L	0.5	0	105	56 - 119%	PASS	
Chrysene	Total	1.52	1	0.001	0.005	µg/L	1.5	0	101	56 - 141%	PASS	
Dibenz[a,h]anthracene	Total	1.6	1	0.001	0.005	µg/L	1.5	0	107	55 - 150%	PASS	
Dibenzo[a,l]pyrene	Total	0.46	1	0.001	0.005	µg/L	0.5	0	92	50 - 150%	PASS	
Dibenzothiophene	Total	0.454	1	0.001	0.005	µg/L	0.5	0	91	46 - 126%	PASS	

## Polynuclear Aromatic Hydrocarbons

## QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY		PRECISION		QA CODE <sub>c</sub>
							LEVEL	RESULT	%	LIMITS	%	LIMITS	
Fluoranthene	Total	1.69	1	0.001	0.005	µg/L	1.5	0	113	60 - 146%	PASS		
Fluorene	Total	1.59	1	0.001	0.005	µg/L	1.5	0	106	58 - 131%	PASS		
Indeno[1,2,3-cd]pyrene	Total	1.56	1	0.001	0.005	µg/L	1.5	0	104	50 - 151%	PASS		
Naphthalene	Total	1.42	1	0.001	0.005	µg/L	1.5	0	95	41 - 126%	PASS		
Perylene	Total	0.468	1	0.001	0.005	µg/L	0.5	0	94	48 - 141%	PASS		
Phenanthrene	Total	1.57	1	0.001	0.005	µg/L	1.5	0	105	67 - 127%	PASS		
Pyrene	Total	1.62	1	0.001	0.005	µg/L	1.5	0	108	54 - 156%	PASS		

## Polynuclear Aromatic Hydrocarbons

## QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY		PRECISION		QA CODEc		
							LEVEL	RESULT	%	LIMITS	%	LIMITS			
<b>Sample ID: 103112-BS2</b>		<b>QAQC Procedural Blank</b>			<b>Matrix: BlankMatrix</b>			<b>Sampled:</b>			<b>Received:</b>				
		Method: EPA 625.1			Batch ID: O-40076			Prepared: 03-Jan-23			Analyzed: 08-Jan-23				
(d10-Acenaphthene)	Total	89	1				% Recovery	100	0	89	27 - 133%	PASS	1	30	PASS
(d10-Phenanthrene)	Total	93	1				% Recovery	100	0	93	43 - 129%	PASS	0	30	PASS
(d12-Chrysene)	Total	95	1				% Recovery	100	0	95	52 - 144%	PASS	2	30	PASS
(d12-Perylene)	Total	99	1				% Recovery	100	0	99	36 - 161%	PASS	5	30	PASS
(d8-Naphthalene)	Total	82	1				% Recovery	100	0	82	25 - 125%	PASS	1	30	PASS
1-Methylnaphthalene	Total	0.465	1	0.001	0.005	µg/L		0.5	0	93	31 - 128%	PASS	1	30	PASS
1-Methylphenanthrene	Total	0.439	1	0.001	0.005	µg/L		0.5	0	88	66 - 127%	PASS	1	30	PASS
2,3,5-Trimethylnaphthalene	Total	0.494	1	0.001	0.005	µg/L		0.5	0	99	55 - 122%	PASS	1	30	PASS
2,6-Dimethylnaphthalene	Total	0.479	1	0.001	0.005	µg/L		0.5	0	96	48 - 120%	PASS	1	30	PASS
2-Methylnaphthalene	Total	1.39	1	0.001	0.005	µg/L		1.5	0	93	47 - 130%	PASS	2	30	PASS
Acenaphthene	Total	1.47	1	0.001	0.005	µg/L		1.5	0	98	53 - 131%	PASS	3	30	PASS
Acenaphthylene	Total	1.5	1	0.001	0.005	µg/L		1.5	0	100	43 - 140%	PASS	1	30	PASS
Anthracene	Total	1.53	1	0.001	0.005	µg/L		1.5	0	102	58 - 135%	PASS	0	30	PASS
Benz[a]anthracene	Total	1.56	1	0.001	0.005	µg/L		1.5	0	104	55 - 145%	PASS	3	30	PASS
Benzo[a]pyrene	Total	1.51	1	0.001	0.005	µg/L		1.5	0	101	51 - 143%	PASS	3	30	PASS
Benzo[b]fluoranthene	Total	1.61	1	0.001	0.005	µg/L		1.5	0	107	46 - 165%	PASS	5	30	PASS
Benzo[e]pyrene	Total	0.498	1	0.001	0.005	µg/L		0.5	0	100	42 - 152%	PASS	3	30	PASS
Benzo[g,h,i]perylene	Total	1.57	1	0.001	0.005	µg/L		1.5	0	105	63 - 133%	PASS	1	30	PASS
Benzo[k]fluoranthene	Total	1.48	1	0.001	0.005	µg/L		1.5	0	99	56 - 145%	PASS	2	30	PASS
Biphenyl	Total	0.514	1	0.001	0.005	µg/L		0.5	0	103	56 - 119%	PASS	2	30	PASS
Chrysene	Total	1.47	1	0.001	0.005	µg/L		1.5	0	98	56 - 141%	PASS	3	30	PASS
Dibenz[a,h]anthracene	Total	1.53	1	0.001	0.005	µg/L		1.5	0	102	55 - 150%	PASS	5	30	PASS
Dibenzo[a,l]pyrene	Total	0.507	1	0.001	0.005	µg/L		0.5	0	101	50 - 150%	PASS	9	30	PASS
Dibenzothiophene	Total	0.456	1	0.001	0.005	µg/L		0.5	0	91	46 - 126%	PASS	0	30	PASS

## Polynuclear Aromatic Hydrocarbons

## QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY		PRECISION		QA CODE <sub>c</sub>	
							LEVEL	RESULT	%	LIMITS	%	LIMITS		
Fluoranthene	Total	1.68	1	0.001	0.005	µg/L	1.5	0	112	60 - 146%	PASS	1	30	PASS
Fluorene	Total	1.58	1	0.001	0.005	µg/L	1.5	0	105	58 - 131%	PASS	1	30	PASS
Indeno[1,2,3-cd]pyrene	Total	1.59	1	0.001	0.005	µg/L	1.5	0	106	50 - 151%	PASS	2	30	PASS
Naphthalene	Total	1.38	1	0.001	0.005	µg/L	1.5	0	92	41 - 126%	PASS	3	30	PASS
Perylene	Total	0.448	1	0.001	0.005	µg/L	0.5	0	90	48 - 141%	PASS	4	30	PASS
Phenanthrene	Total	1.55	1	0.001	0.005	µg/L	1.5	0	103	67 - 127%	PASS	1	30	PASS
Pyrene	Total	1.62	1	0.001	0.005	µg/L	1.5	0	108	54 - 156%	PASS	0	30	PASS



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**PHYSICS**

**TENTATIVELY IDENTIFIED COMPOUNDS**

ENVIRONMENTAL LABORATORIES, INC.

*Innovative Solutions for Nature*

**Sample ID: 103113**

RT	Area Pct	Concentration (ng/L)	Library/ID	Cas Number	Match Qual
36.1332	6.2550	1111	Anthracene-D10-	1517-22-2	92
10.8922	2.5531	454	1,5-Heptadien-4-one, 3,3,6-trimethyl-	546-49-6	90

Concentration estimated using the response for Anthracene-d10

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Sample ID: Lab Blank B1\_40076

RT	Area Pct	Concentration (ng/L)	Library/ID	Cas Number	Match Qual
36.1378	5.7449	1111	Anthracene-D10	1517-22-2	91
10.8967	3.3862	655	1,5-Heptadien-4-one, 3,3,6-trimethyl-	546-49-6	89

Concentration estimated using the response for Anthracene-d10

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# PERFORMANCE CHAIN OF CUSTODY

TERRA ENVIRONMENTAL LABORATORIES, INC. AURA

*Innovative Solutions for Nature*

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**Monrovia, CA (Suite 100)**

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

**Chain of Custody Record**



<b>Client Information (Sub Contract Lab)</b>		Sampler:	Lab PIN:	COC No.:					
Client Contact: Shipping/Receiving		Phone:	Arada, Rachelle	360-32258-1					
Company: Physis Environmental Laboratories		Email: Rachelle.Arada@et.eurofins.com		Page: 1 of 1					
Address: 1904 Wright Circle,		Accreditations Required (See note): State - Hawaii		Job #: 390-32804-1					
City: Anaheim		Due Date Requested: 1/13/2023	Carrier Tracking Note(s):	Preservation Codes:					
State, Zip: CA, 92806		TRT Requested (days):	State of Origin: Hawaii	A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Anichlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA M - Hexane N - None O - AshticO2 P - Na2OAS Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecylhydrate U - Acetone V - MCAA W - pH 4.5 Y - Trizma Z - other (Specify)					
Project Name: RED-HILL		Project #: 38001111	Other:						
Site: Honolulu BWS Sites		SSOW#:	Special Instructions/Note:						
<b>Sample Identification - Client ID (Lab ID)</b>		<b>Sample Date</b>	<b>Sample Time</b>	<b>Sample Type (IC=comb, G=grab)</b>	<b>Matrix (Inert, Sealed, Overweight, etc.)</b>	<b>Field Filtered Sample (Yes or No)</b>	<b>Perform MS/MSD (Yes or No)</b>	<b>Total Number of containers</b>	<b>Special Instructions/Note:</b>
MOANALUA WELLS (390-32804-1)	12/27/22	11:25	Hawaiian	Water			X	2	See Attached Instructions
<p>Note: Since laboratory accreditations are subject to change, Eurofins Eaton Analytical, LLC places the ownership of method, analyte &amp; 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 analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins Eaton Analytical, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Eaton Analytical, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Eaton Analytical, LLC.</p>									
<p><b>Possible Hazard Identification</b>        Unconfirmed        Deliverable Requested: I, II, III, IV, Other (Specify) Primary Deliverable Rank: 2        Empty Kit Relinquished by: Date: Time: Method of Shipment:        Relinquished by: Date/Time: Company: Received by: Date/Time: Company:        Relinquished by: Date/Time: Company: Received by: Date/Time: Company:        Relinquished by: Date/Time: Company: Received by: Date/Time: Company:        Custody Seals Intact: Custody Seal No.: Cooler Temperature(s) °C and Other Remarks:</p>									

Project Iteration ID: 1407003-353  
 Client Name: Eurofins Eaton Analytical  
 Project Name: RED-HILL Project # 38001111 Job # 380-32804-1  
 COC Page Number: 2 of 2  
 Bottle Label Color: NA

## Sample Receipt Summary

### Receiving Info

- Initials Received By: SW
- Date Received: 12/30
- Time Received: 1335
- Client Name: Eurofins
- Courier Information: (Please circle)
  - Client
    - UPS
    - GSO/GLS
    - Area Fast
    - Ontrac
  - FedEx
  - PHYSIS Driver:
    - Start Time: \_\_\_\_\_
    - End Time: \_\_\_\_\_
    - Total Mileage: \_\_\_\_\_
    - Number of Pickups: \_\_\_\_\_
- Container Information: (Please put the # of containers or circle none)
  - Cooler
  - Styrofoam Cooler
  - Boxes
  - None
  - Carboy(s)
  - Carboy Trash Can(s)
  - Carboy Cap(s)
  - Other \_\_\_\_\_
- What type of ice was used: (Please circle any that apply)
  - Wet Ice
  - Blue Ice
  - Dry Ice
  - Water
  - None
- Randomly Selected Samples Temperature (°C): 3.6  
 Used I/R Thermometer # 1-2

### Inspection Info

- Initials Inspected By: RGH

### Sample Integrity Upon Receipt:

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

Notes:



# Shipping Order Form - Bottle Order



Environment Testing



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

Shipping Order ID: 9769

Ship Via: **FedEx**  
When To Ship: 12/26/2022

Due On: 12/26/2022 11:59:00PM  
Due After: 12/26/2022 12:00:00 AM

### Ship To Information

Project Manager: *Rachelle Arada*  
Tel: (626) 386-1106 Em: *Rachelle.Arada@et.eurofinsus.com*  
Company Name: *City & County of Honolulu*  
Attention: *Erwin Kawata*  
Address 1: *630 South Beretania Street*  
Address 2: *Public Service Bldg. Room 308*  
Address 3:  
City: *Honolulu*  
State: *HI*  
Zip: *96843*  
Phone #: *+1-808-748-5841*  
Project Ref: *RED-HILL*  
Event Desc: *RUSH Weekly Red Hill*

### Notes to Bottle/Shipping Department

Pack with Gel Ice.

Please pack as one cooler per site.

Label the cooler under the left hand handle with the ID of the samples that are in the cooler (if more than 1 cooler is used per 1 sample ID label cooler with "sample ID x of y").

Pack by sample ID on the bottle labels (with one full set of tests per sample ID).

Send only medium to large coolers.

### Shipping Method: Individual sample per cooler (affixed TALS labels)

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Ready to Fill                            | <input type="checkbox"/> Return Shipment Labels         |
| <input checked="" type="checkbox"/> Preprinted COC                           | <input type="checkbox"/> Prepaid Return                 |
| <input type="checkbox"/> <input type="text" value="1"/> Number of COC Copies | Monrovia, CA (Suite 100)                                |
| <input type="checkbox"/> Seals on Bottle                                     | <input type="checkbox"/> Short Hold Times               |
| <input type="checkbox"/> Seals on Coolers                                    | <input checked="" type="checkbox"/> Temperature Control |
| <input type="checkbox"/> Priority  | <input type="checkbox"/> Rush                           |

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



**Bottle Order Information**

Bottle Order: RUSH RED-HILL WEEKLY  
 Bottle Order #: 2757  
 Request From Client: 7/20/2022  
 Date Order Posted: 7/20/2022 11:12:54AM  
 Order Status: Ready To Process  
 Prepared By: Davis Haley  
 Deliver By Date: 12/26/2022 11:59:00PM  
 Lab Project Number: 38001111  
 PWSID:

**Order Completion Information**

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

Sets	Bottles/Set	Qty	Bottle Type Description	Preservative	Method	Matrix	Sample Type	Comments	Lot #
4	2	8	Amber Glass 1 liter - Sodium Thiosulfate	Sodium Thiosulfate	SUBCONTRACT - 625 PAH Physis LL (EAL) + TICs	Water	Normal	625 PAH	
4	4	16	Voa Vial 40ml - SodiumThio w/HCl-dropper	Sodium Thiosulfate	SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)	Water	Normal		
4	2	8	Amber Glass 1 L - NaThiosulfate 8mL HCL	Sodium Thiosulfate/Hydrochloric Acid	SUBCONTRACT - 8015 Diesel LL (EAL) and Motor Oil	Water	Normal		
4	2	8	Amber Glass 1 Liter- Sodium Sulfite/HCl	Sodium Sulfite w/HCl	525.2_PREC - (MOD) 525plus Plus TICs	Water	Normal		
4	2	8	VOA Vial 40mL - NaThiosulfate/HCL	Sodium Thiosulfate/Hydrochloric Acid	SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)	Water	Trip Blank		

<b>Total Bottle Summary</b>		
Bottle Type Description	Preservative	Bottle Count
Amber Glass 1 L - NaThiosulfate 8mL HCL	Sodium Thiosulfate/Hydrochloric Acid	8
Amber Glass 1 liter - Sodium Thiosulfate	Sodium Thiosulfate	8
Amber Glass 1 Liter- Sodium Sulfite/HCl	Sodium Sulfite w/HCl	8
VOA Vial 40mL - NaThiosulfate/HCL	Sodium Thiosulfate/Hydrochloric Acid	8
Voa Vial 40ml - SodiumThio w/HCl-dropper	Sodium Thiosulfate	16
Total Bottles:		<b>48</b>

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

**Notes to Field Staff:**



Scan QR code for field sampler instructions

SAMPLER FOLLOW 2 STAGE FIELD PRESERVATION FOR 8015 and 525.2

**Health and Safety Notes:**

Preservative	Comment
Sodium Sulfite w/HCl	CAUTION! CONTAINS SODIUM SULFITE. Harmful if inhaled. Use adequate ventilation. Avoid skin and eye contact. If contact is made, FLUSH IMMEDIATELY with water.
Sodium Thiosulfate	CAUTION! CONTAINS 10% SODIUM THIOSULFATE. Harmful if inhaled. Use adequate ventilation. Avoid skin and eye contact. If contact is made, FLUSH IMMEDIATELY with water.
Sodium Thiosulfate/Hydrochloric Acid	CAUTION! CONTAINS 10% SODIUM THIOSULFATE. Harmful if inhaled. Use adequate ventilation. Avoid skin and eye contact. If contact is made, FLUSH IMMEDIATELY with water. Contains 13.3% Monochloroacetic Acid. Avoid skin and eye contact. If contact is made, FLUSH IMMEDIATELY with water.  CAUTION! CONTAINS 1:1 HYDROCHLORIC ACID. Avoid skin and eye contact. If contact is made, FLUSH IMMEDIATELY with water.

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Relinquished By	Company	Date	Time	Received By	Company	Seal #: Seal #: Seal #:
Relinquished By	Company	Date	Time	Received By	Company	Seal #: Seal #: Seal #:

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

# Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-32804-1

**Login Number: 32804**  
**List Number: 1**  
**Creator: Elyas, Matthew**

**List Source: Eurofins Eaton Monrovia**

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