

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

# ANALYTICAL REPORT

## PREPARED FOR

Attn: Mr. Erwin Kawata  
City & County of Honolulu  
630 South Beretania Street  
Public Service Bldg. Room 310  
Honolulu, Hawaii 96843

Generated 6/6/2023 6:09:03 PM

## JOB DESCRIPTION

RED-HILL  
RUSH Weekly Red Hill

## JOB NUMBER

380-44904-1

# Eurofins Eaton Analytical Pomona

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Eaton Analytical, LLC Project Manager.

## 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



Generated  
6/6/2023 6:09:03 PM

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



# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	3
Definitions/Glossary . . . . .	4
Case Narrative . . . . .	5
Detection Summary . . . . .	6
Client Sample Results . . . . .	7
Action Limit Summary . . . . .	10
Surrogate Summary . . . . .	11
QC Sample Results . . . . .	14
QC Association Summary . . . . .	29
Lab Chronicle . . . . .	31
Certification Summary . . . . .	32
Method Summary . . . . .	34
Sample Summary . . . . .	35
Subcontract Data . . . . .	36
Chain of Custody . . . . .	96
Receipt Checklists . . . . .	99

# Definitions/Glossary

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

Job ID: 380-44904-1

## Qualifiers

### GC/MS Semi VOA

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

### GC/MS Semi VOA TICs

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

### Subcontract

Qualifier	Qualifier Description
U	This analyte was not detected.

## Glossary

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



# Case Narrative

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

Job ID: 380-44904-1

---

**Job ID: 380-44904-1**

---

**Laboratory: Eurofins Eaton Analytical Pomona**

## Narrative

**Job Narrative  
380-44904-1**

### Comments

No additional comments.

### Receipt

The samples were received on 4/25/2023 9:20 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 5 coolers at receipt time were 1.7° C, 1.9° C, 3.5° C, 4.9° C and 5.2° 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: 380-44904-1

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

**Lab Sample ID: 380-44904-1**

No Detections.

**Client Sample ID: TB MOANALUA WELLS**

**Lab Sample ID: 380-44904-2**

No Detections.

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

This Detection Summary does not include radiochemical test results.

Eurofins Eaton Analytical Pomona

# Client Sample Results

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

Job ID: 380-44904-1

**Client Sample ID: MOANALUA WELLS**

**Lab Sample ID: 380-44904-1**

**Date Collected: 04/21/23 10:00**

**Matrix: Drinking Water**

**Date Received: 04/25/23 09:20**

**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		0.097	ug/L		04/28/23 07:30	04/30/23 18:11	1
2,4'-DDE	ND		0.097	ug/L		04/28/23 07:30	04/30/23 18:11	1
2,4'-DDT	ND		0.097	ug/L		04/28/23 07:30	04/30/23 18:11	1
2,4-Dinitrotoluene	ND		0.097	ug/L		04/28/23 07:30	04/30/23 18:11	1
2,6-Dinitrotoluene	ND		0.097	ug/L		04/28/23 07:30	04/30/23 18:11	1
4,4'-DDD	ND		0.097	ug/L		04/28/23 07:30	04/30/23 18:11	1
4,4'-DDE	ND		0.097	ug/L		04/28/23 07:30	04/30/23 18:11	1
4,4'-DDT	ND		0.097	ug/L		04/28/23 07:30	04/30/23 18:11	1
Acenaphthene	ND		0.097	ug/L		04/28/23 07:30	04/30/23 18:11	1
Acenaphthylene	ND		0.097	ug/L		04/28/23 07:30	04/30/23 18:11	1
Acetochlor	ND		0.097	ug/L		04/28/23 07:30	04/30/23 18:11	1
Alachlor	ND		0.049	ug/L		04/28/23 07:30	04/30/23 18:11	1
alpha-BHC	ND		0.097	ug/L		04/28/23 07:30	04/30/23 18:11	1
alpha-Chlordane	ND		0.049	ug/L		04/28/23 07:30	04/30/23 18:11	1
Anthracene	ND		0.019	ug/L		04/28/23 07:30	04/30/23 18:11	1
Atrazine	ND		0.049	ug/L		04/28/23 07:30	04/30/23 18:11	1
Benz(a)anthracene	ND		0.049	ug/L		04/28/23 07:30	04/30/23 18:11	1
Benzo[a]pyrene	ND		0.019	ug/L		04/28/23 07:30	04/30/23 18:11	1
Benzo[b]fluoranthene	ND		0.019	ug/L		04/28/23 07:30	04/30/23 18:11	1
Benzo[g,h,i]perylene	ND		0.049	ug/L		04/28/23 07:30	04/30/23 18:11	1
Benzo[k]fluoranthene	ND		0.019	ug/L		04/28/23 07:30	04/30/23 18:11	1
beta-BHC	ND		0.097	ug/L		04/28/23 07:30	04/30/23 18:11	1
Bromacil	ND		0.097	ug/L		04/28/23 07:30	04/30/23 18:11	1
Butachlor	ND		0.049	ug/L		04/28/23 07:30	04/30/23 18:11	1
Butylbenzylphthalate	ND		0.49	ug/L		04/28/23 07:30	04/30/23 18:11	1
Caffeine	ND		0.049	ug/L		04/28/23 07:30	04/30/23 18:11	1
Chlorobenzilate	ND		0.097	ug/L		04/28/23 07:30	04/30/23 18:11	1
Chloroneb	ND		0.097	ug/L		04/28/23 07:30	04/30/23 18:11	1
Chlorothalonil (Draconil, Bravo)	ND		0.097	ug/L		04/28/23 07:30	04/30/23 18:11	1
Chlorpyrifos	ND		0.049	ug/L		04/28/23 07:30	04/30/23 18:11	1
Chrysene	ND		0.019	ug/L		04/28/23 07:30	04/30/23 18:11	1
delta-BHC	ND		0.097	ug/L		04/28/23 07:30	04/30/23 18:11	1
Di(2-ethylhexyl)adipate	ND		0.58	ug/L		04/28/23 07:30	04/30/23 18:11	1
Bis(2-ethylhexyl) phthalate	ND		0.58	ug/L		04/28/23 07:30	04/30/23 18:11	1
Diazinon (Qualitative)	ND		0.097	ug/L		04/28/23 07:30	04/30/23 18:11	1
Dibenz(a,h)anthracene	ND		0.049	ug/L		04/28/23 07:30	04/30/23 18:11	1
Diclorvos (DDVP)	ND	^3+	0.049	ug/L		04/28/23 07:30	04/30/23 18:11	1
Dieldrin	ND		0.19	ug/L		04/28/23 07:30	04/30/23 18:11	1
Diethylphthalate	ND		0.49	ug/L		04/28/23 07:30	04/30/23 18:11	1
Dimethylphthalate	ND		0.49	ug/L		04/28/23 07:30	04/30/23 18:11	1
Di-n-butyl phthalate	ND		0.97	ug/L		04/28/23 07:30	04/30/23 18:11	1
Di-n-octyl phthalate	ND		0.097	ug/L		04/28/23 07:30	04/30/23 18:11	1
Endosulfan I (Alpha)	ND		0.097	ug/L		04/28/23 07:30	04/30/23 18:11	1
Endosulfan II (Beta)	ND		0.097	ug/L		04/28/23 07:30	04/30/23 18:11	1
Endosulfan sulfate	ND		0.097	ug/L		04/28/23 07:30	04/30/23 18:11	1
Endrin	ND		0.097	ug/L		04/28/23 07:30	04/30/23 18:11	1
Endrin aldehyde	ND		0.097	ug/L		04/28/23 07:30	04/30/23 18:11	1
EPTC	ND		0.097	ug/L		04/28/23 07:30	04/30/23 18:11	1
Fluoranthene	ND		0.097	ug/L		04/28/23 07:30	04/30/23 18:11	1

Eurofins Eaton Analytical Pomona

# Client Sample Results

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

Job ID: 380-44904-1

**Client Sample ID: MOANALUA WELLS**

**Lab Sample ID: 380-44904-1**

**Date Collected: 04/21/23 10:00**

**Matrix: Drinking Water**

**Date Received: 04/25/23 09:20**

**PWSID Number: HI0000331**

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	ND		0.049	ug/L		04/28/23 07:30	04/30/23 18:11	1
gamma-Chlordane	ND		0.049	ug/L		04/28/23 07:30	04/30/23 18:11	1
Heptachlor	ND	^3+	0.039	ug/L		04/28/23 07:30	04/30/23 18:11	1
Heptachlor epoxide (isomer B)	ND		0.049	ug/L		04/28/23 07:30	04/30/23 18:11	1
Hexachlorobenzene	ND		0.049	ug/L		04/28/23 07:30	04/30/23 18:11	1
Hexachlorocyclopentadiene	ND		0.049	ug/L		04/28/23 07:30	04/30/23 18:11	1
Indeno[1,2,3-cd]pyrene	ND		0.049	ug/L		04/28/23 07:30	04/30/23 18:11	1
Isophorone	ND		0.49	ug/L		04/28/23 07:30	04/30/23 18:11	1
Lindane	ND		0.039	ug/L		04/28/23 07:30	04/30/23 18:11	1
Malathion	ND		0.097	ug/L		04/28/23 07:30	04/30/23 18:11	1
Methoxychlor	ND		0.097	ug/L		04/28/23 07:30	04/30/23 18:11	1
Metolachlor	ND		0.049	ug/L		04/28/23 07:30	04/30/23 18:11	1
Metribuzin	ND		0.049	ug/L		04/28/23 07:30	04/30/23 18:11	1
Molinate	ND		0.097	ug/L		04/28/23 07:30	04/30/23 18:11	1
Naphthalene	ND		0.29	ug/L		04/28/23 07:30	04/30/23 18:11	1
Parathion	ND		0.097	ug/L		04/28/23 07:30	04/30/23 18:11	1
Pendimethalin (Penoxaline)	ND		0.097	ug/L		04/28/23 07:30	04/30/23 18:11	1
Total Permethrin (mixed isomers)	ND		0.19	ug/L		04/28/23 07:30	04/30/23 18:11	1
Phenanthrene	ND		0.039	ug/L		04/28/23 07:30	04/30/23 18:11	1
Propachlor	ND		0.049	ug/L		04/28/23 07:30	04/30/23 18:11	1
Pyrene	ND		0.049	ug/L		04/28/23 07:30	04/30/23 18:11	1
Simazine	ND		0.049	ug/L		04/28/23 07:30	04/30/23 18:11	1
Terbacil	ND		0.097	ug/L		04/28/23 07:30	04/30/23 18:11	1
Terbutylazine	ND		0.097	ug/L		04/28/23 07:30	04/30/23 18:11	1
Thiobencarb	ND		0.19	ug/L		04/28/23 07:30	04/30/23 18:11	1
trans-Nonachlor	ND		0.049	ug/L		04/28/23 07:30	04/30/23 18:11	1
Trifluralin	ND		0.097	ug/L		04/28/23 07:30	04/30/23 18:11	1

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Tentatively Identified Compound	None		ug/L			N/A	04/28/23 07:30	04/30/23 18:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	95		70 - 130	04/28/23 07:30	04/30/23 18:11	1
Triphenylphosphate	112		70 - 130	04/28/23 07:30	04/30/23 18:11	1
Perylene-d12	99		70 - 130	04/28/23 07:30	04/30/23 18:11	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		04/26/23 00:00	05/04/23 02:18	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		04/26/23 00:00	05/04/23 02:18	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		04/26/23 00:00	05/04/23 02:18	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		04/26/23 00:00	05/04/23 02:18	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		04/26/23 00:00	05/04/23 02:18	1
Acenaphthene	ND		0.005	0.001	µg/L		04/26/23 00:00	05/04/23 02:18	1
Acenaphthylene	ND		0.005	0.001	µg/L		04/26/23 00:00	05/04/23 02:18	1
Anthracene	ND		0.005	0.001	µg/L		04/26/23 00:00	05/04/23 02:18	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		04/26/23 00:00	05/04/23 02:18	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		04/26/23 00:00	05/04/23 02:18	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		04/26/23 00:00	05/04/23 02:18	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		04/26/23 00:00	05/04/23 02:18	1

Eurofins Eaton Analytical Pomona

# Client Sample Results

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

Job ID: 380-44904-1

## Client Sample ID: MOANALUA WELLS

## Lab Sample ID: 380-44904-1

Date Collected: 04/21/23 10:00

Matrix: Drinking Water

Date Received: 04/25/23 09:20

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		04/26/23 00:00	05/04/23 02:18	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		04/26/23 00:00	05/04/23 02:18	1
Biphenyl	ND		0.005	0.001	µg/L		04/26/23 00:00	05/04/23 02:18	1
Chrysene	ND		0.005	0.001	µg/L		04/26/23 00:00	05/04/23 02:18	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		04/26/23 00:00	05/04/23 02:18	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		04/26/23 00:00	05/04/23 02:18	1
Dibenzothiophene	ND		0.005	0.001	µg/L		04/26/23 00:00	05/04/23 02:18	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		04/26/23 00:00	05/04/23 02:18	1
Fluoranthene	ND		0.005	0.001	µg/L		04/26/23 00:00	05/04/23 02:18	1
Fluorene	ND		0.005	0.001	µg/L		04/26/23 00:00	05/04/23 02:18	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		04/26/23 00:00	05/04/23 02:18	1
Naphthalene	ND		0.005	0.001	µg/L		04/26/23 00:00	05/04/23 02:18	1
Perylene	ND		0.005	0.001	µg/L		04/26/23 00:00	05/04/23 02:18	1
Phenanthrene	ND		0.005	0.001	µg/L		04/26/23 00:00	05/04/23 02:18	1
Pyrene	ND		0.005	0.001	µg/L		04/26/23 00:00	05/04/23 02:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	81		27 - 133	04/26/23 00:00	05/04/23 02:18	1
(d10-Phenanthrene)	80		43 - 129	04/26/23 00:00	05/04/23 02:18	1
(d12-Chrysene)	62		52 - 144	04/26/23 00:00	05/04/23 02:18	1
(d12-Perylene)	81		36 - 161	04/26/23 00:00	05/04/23 02:18	1
(d8-Naphthalene)	75		25 - 125	04/26/23 00:00	05/04/23 02:18	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			04/27/23 13:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
BROMOFLUOROBENZENE	87		60 - 140		04/27/23 13:58	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	0.027		mg/L			04/28/23 20:21	1
JP5	ND	U	0.053		mg/L			04/28/23 20:21	1
JP8	ND	U	0.053		mg/L			04/28/23 20:21	1
MOTOR OIL	ND	U	0.053		mg/L			04/28/23 20:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
BROMOBENZENE	73		60 - 130		04/28/23 20:21	1
HEXACOSANE	86		60 - 130		04/28/23 20:21	1

## Client Sample ID: TB MOANALUA WELLS

## Lab Sample ID: 380-44904-2

Date Collected: 04/21/23 10:00

Matrix: Water

Date Received: 04/25/23 09:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GASOLINE	ND	U	0.020		mg/L			04/27/23 15:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
BROMOFLUOROBENZENE	84		60 - 140		04/27/23 15:46	1

Eurofins Eaton Analytical Pomona

# Action Limit Summary

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

Job ID: 380-44904-1

**Client Sample ID: MOANALUA WELLS**

**Lab Sample ID: 380-44904-1**

**PWSID Number: HI0000331**

## Compliance Check

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

Analyte	Result	Qualifier	Unit	EPAMCL	RL	Method	Prep Type
				Limit			
Alachlor	ND		ug/L	2	0.049	525.2	Total/NA
Atrazine	ND		ug/L	3	0.049	525.2	Total/NA
Benzo[a]pyrene	ND		ug/L	0.2	0.019	525.2	Total/NA
Di(2-ethylhexyl)adipate	ND		ug/L	400	0.58	525.2	Total/NA
Bis(2-ethylhexyl) phthalate	ND		ug/L	6	0.58	525.2	Total/NA
Endrin	ND		ug/L	2	0.097	525.2	Total/NA
Heptachlor	ND	^3+	ug/L	0.4	0.039	525.2	Total/NA
Heptachlor epoxide (isomer B)	ND		ug/L	0.2	0.049	525.2	Total/NA
Hexachlorobenzene	ND		ug/L	1	0.049	525.2	Total/NA
Hexachlorocyclopentadiene	ND		ug/L	50	0.049	525.2	Total/NA
Lindane	ND		ug/L	0.2	0.039	525.2	Total/NA
Methoxychlor	ND		ug/L	40	0.097	525.2	Total/NA
Simazine	ND		ug/L	4	0.049	525.2	Total/NA

# Surrogate Summary

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

Job ID: 380-44904-1

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

Matrix: Drinking Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		2NMX (70-130)	TPP (70-130)	PRY (70-130)
380-44904-1	MOANALUA WELLS	95	112	99
380-44904-1 DU	MOANALUA WELLS	95	108	97

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

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		2NMX (70-130)	TPP (70-130)	PRY (70-130)
380-44870-AJ-1-A MS	Matrix Spike	97	117	98
LCS 380-38338/3-A	Lab Control Sample	99	115	95
LCS 380-38338/4-A	Lab Control Sample Dup	96	108	95
MB 380-38338/1-A	Method Blank	98	107	91
MRL 380-38338/2-A	Lab Control Sample	97	111	95

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

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

Matrix: BlankMatrix

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)				
		Acenaphtl (27-133)	Phenanth (43-129)	CRY (52-144)	NPT (25-125)	PRY (36-161)
106257-B1	Method Blank	78	81	64	78	81
106257-BS1	Lab Control Sample	77	78	60	68	78
106257-BS2	Lab Control Sample Dup	78	74	64	73	81

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

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

Matrix: Drinking Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)				
		Acenaphtl (27-133)	Phenanth (43-129)	CRY (52-144)	NPT (25-125)	PRY (36-161)
380-44904-1	MOANALUA WELLS	81	80	62	75	81

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

# Surrogate Summary

Client: City & County of Honolulu

Job ID: 380-44904-1

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)
380-44904-1	MOANALUA WELLS	87

#### 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
23VG39D14B	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)
23VG39D14C	LCD	116
23VG39D14L	Lab Control Sample	116

#### Surrogate Legend

BFB = BROMOFLUOROBENZENE

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

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB (60-140)
380-44904-2	TB MOANALUA WELLS	84

#### 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)
23D295-01M	Matrix Spike	113
23D295-01S	Matrix Spike Duplicate	115

#### Surrogate Legend

BFB = BROMOFLUOROBENZENE



# Surrogate Summary

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

Job ID: 380-44904-1

**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)
380-44904-1	MOANALUA WELLS	73	86

### 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)

Lab Sample ID	Client Sample ID	BB (60-130)	XACOSAI (60-130)
23DSD033WB	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)

Lab Sample ID	Client Sample ID	BB (60-130)	XACOSAI (60-130)
23DSD033WL	Lab Control Sample	66	90
23J5D033WL	Lab Control Sample	72	79
23J8D033WL	Lab Control Sample	97	80

### Surrogate Legend

BB = BROMOBENZENE  
HEXACOSANE = HEXACOSANE

# QC Sample Results

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

Job ID: 380-44904-1

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

**Lab Sample ID: MB 380-38338/1-A**  
**Matrix: Water**  
**Analysis Batch: 38525**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 38338**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		0.099	ug/L		04/28/23 07:30	04/30/23 13:51	1
2,4'-DDE	ND		0.099	ug/L		04/28/23 07:30	04/30/23 13:51	1
2,4'-DDT	ND		0.099	ug/L		04/28/23 07:30	04/30/23 13:51	1
2,4-Dinitrotoluene	ND		0.099	ug/L		04/28/23 07:30	04/30/23 13:51	1
2,6-Dinitrotoluene	ND		0.099	ug/L		04/28/23 07:30	04/30/23 13:51	1
4,4'-DDD	ND		0.099	ug/L		04/28/23 07:30	04/30/23 13:51	1
4,4'-DDE	ND		0.099	ug/L		04/28/23 07:30	04/30/23 13:51	1
4,4'-DDT	ND		0.099	ug/L		04/28/23 07:30	04/30/23 13:51	1
Acenaphthene	ND		0.099	ug/L		04/28/23 07:30	04/30/23 13:51	1
Acenaphthylene	ND		0.099	ug/L		04/28/23 07:30	04/30/23 13:51	1
Acetochlor	ND		0.099	ug/L		04/28/23 07:30	04/30/23 13:51	1
Alachlor	ND		0.050	ug/L		04/28/23 07:30	04/30/23 13:51	1
alpha-BHC	ND		0.099	ug/L		04/28/23 07:30	04/30/23 13:51	1
alpha-Chlordane	ND		0.050	ug/L		04/28/23 07:30	04/30/23 13:51	1
Anthracene	ND		0.020	ug/L		04/28/23 07:30	04/30/23 13:51	1
Atrazine	ND		0.050	ug/L		04/28/23 07:30	04/30/23 13:51	1
Benz(a)anthracene	ND		0.050	ug/L		04/28/23 07:30	04/30/23 13:51	1
Benzo[a]pyrene	ND		0.020	ug/L		04/28/23 07:30	04/30/23 13:51	1
Benzo[b]fluoranthene	ND		0.020	ug/L		04/28/23 07:30	04/30/23 13:51	1
Benzo[g,h,i]perylene	ND		0.050	ug/L		04/28/23 07:30	04/30/23 13:51	1
Benzo[k]fluoranthene	ND		0.020	ug/L		04/28/23 07:30	04/30/23 13:51	1
beta-BHC	ND		0.099	ug/L		04/28/23 07:30	04/30/23 13:51	1
Bromacil	ND		0.099	ug/L		04/28/23 07:30	04/30/23 13:51	1
Butachlor	ND		0.050	ug/L		04/28/23 07:30	04/30/23 13:51	1
Butylbenzylphthalate	ND		0.50	ug/L		04/28/23 07:30	04/30/23 13:51	1
Caffeine	ND		0.050	ug/L		04/28/23 07:30	04/30/23 13:51	1
Chlorobenzilate	ND		0.099	ug/L		04/28/23 07:30	04/30/23 13:51	1
Chloroneb	ND		0.099	ug/L		04/28/23 07:30	04/30/23 13:51	1
Chlorothalonil (Draconil, Bravo)	ND		0.099	ug/L		04/28/23 07:30	04/30/23 13:51	1
Chlorpyrifos	ND		0.050	ug/L		04/28/23 07:30	04/30/23 13:51	1
Chrysene	ND		0.020	ug/L		04/28/23 07:30	04/30/23 13:51	1
delta-BHC	ND		0.099	ug/L		04/28/23 07:30	04/30/23 13:51	1
Di(2-ethylhexyl)adipate	ND		0.60	ug/L		04/28/23 07:30	04/30/23 13:51	1
Bis(2-ethylhexyl) phthalate	ND		0.60	ug/L		04/28/23 07:30	04/30/23 13:51	1
Diazinon (Qualitative)	ND		0.099	ug/L		04/28/23 07:30	04/30/23 13:51	1
Dibenz(a,h)anthracene	ND		0.050	ug/L		04/28/23 07:30	04/30/23 13:51	1
Diclorvos (DDVP)	ND		0.050	ug/L		04/28/23 07:30	04/30/23 13:51	1
Dieldrin	ND		0.20	ug/L		04/28/23 07:30	04/30/23 13:51	1
Diethylphthalate	ND		0.50	ug/L		04/28/23 07:30	04/30/23 13:51	1
Dimethylphthalate	ND		0.50	ug/L		04/28/23 07:30	04/30/23 13:51	1
Di-n-butyl phthalate	ND		0.99	ug/L		04/28/23 07:30	04/30/23 13:51	1
Di-n-octyl phthalate	ND		0.099	ug/L		04/28/23 07:30	04/30/23 13:51	1
Endosulfan I (Alpha)	ND		0.099	ug/L		04/28/23 07:30	04/30/23 13:51	1
Endosulfan II (Beta)	ND		0.099	ug/L		04/28/23 07:30	04/30/23 13:51	1
Endosulfan sulfate	ND		0.099	ug/L		04/28/23 07:30	04/30/23 13:51	1
Endrin	ND		0.099	ug/L		04/28/23 07:30	04/30/23 13:51	1
Endrin aldehyde	ND		0.099	ug/L		04/28/23 07:30	04/30/23 13:51	1
EPTC	ND		0.099	ug/L		04/28/23 07:30	04/30/23 13:51	1

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-44904-1

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

**Lab Sample ID: MB 380-38338/1-A**  
**Matrix: Water**  
**Analysis Batch: 38525**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 38338**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoranthene	ND		0.099	ug/L		04/28/23 07:30	04/30/23 13:51	1
Fluorene	ND		0.050	ug/L		04/28/23 07:30	04/30/23 13:51	1
gamma-Chlordane	ND		0.050	ug/L		04/28/23 07:30	04/30/23 13:51	1
Heptachlor	ND		0.040	ug/L		04/28/23 07:30	04/30/23 13:51	1
Heptachlor epoxide (isomer B)	ND		0.050	ug/L		04/28/23 07:30	04/30/23 13:51	1
Hexachlorobenzene	ND		0.050	ug/L		04/28/23 07:30	04/30/23 13:51	1
Hexachlorocyclopentadiene	ND		0.050	ug/L		04/28/23 07:30	04/30/23 13:51	1
Indeno[1,2,3-cd]pyrene	ND		0.050	ug/L		04/28/23 07:30	04/30/23 13:51	1
Isophorone	ND		0.50	ug/L		04/28/23 07:30	04/30/23 13:51	1
Lindane	ND		0.040	ug/L		04/28/23 07:30	04/30/23 13:51	1
Malathion	ND		0.099	ug/L		04/28/23 07:30	04/30/23 13:51	1
Methoxychlor	ND		0.099	ug/L		04/28/23 07:30	04/30/23 13:51	1
Metolachlor	ND		0.050	ug/L		04/28/23 07:30	04/30/23 13:51	1
Metribuzin	ND		0.050	ug/L		04/28/23 07:30	04/30/23 13:51	1
Molinate	ND		0.099	ug/L		04/28/23 07:30	04/30/23 13:51	1
Naphthalene	ND		0.30	ug/L		04/28/23 07:30	04/30/23 13:51	1
Parathion	ND		0.099	ug/L		04/28/23 07:30	04/30/23 13:51	1
Pendimethalin (Penoxaline)	ND		0.099	ug/L		04/28/23 07:30	04/30/23 13:51	1
Total Permethrin (mixed isomers)	ND		0.20	ug/L		04/28/23 07:30	04/30/23 13:51	1
Phenanthrene	ND		0.040	ug/L		04/28/23 07:30	04/30/23 13:51	1
Propachlor	ND		0.050	ug/L		04/28/23 07:30	04/30/23 13:51	1
Pyrene	ND		0.050	ug/L		04/28/23 07:30	04/30/23 13:51	1
Simazine	ND		0.050	ug/L		04/28/23 07:30	04/30/23 13:51	1
Terbacil	ND		0.099	ug/L		04/28/23 07:30	04/30/23 13:51	1
Terbutylazine	ND		0.099	ug/L		04/28/23 07:30	04/30/23 13:51	1
Thiobencarb	ND		0.20	ug/L		04/28/23 07:30	04/30/23 13:51	1
trans-Nonachlor	ND		0.050	ug/L		04/28/23 07:30	04/30/23 13:51	1
Trifluralin	ND		0.099	ug/L		04/28/23 07:30	04/30/23 13:51	1

Tentatively Identified Compound	MB Est. Result	MB Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Decane	1.95	T J N	ug/L		2.39	124-18-5	04/28/23 07:30	04/30/23 13:51	1
Decane, 2-methyl-	0.619	T J N	ug/L		2.58	6975-98-0	04/28/23 07:30	04/30/23 13:51	1
n-Hexadecanoic acid	0.523	T J N	ug/L		5.84	57-10-3	04/28/23 07:30	04/30/23 13:51	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	98		70 - 130	04/28/23 07:30	04/30/23 13:51	1
Triphenylphosphate	107		70 - 130	04/28/23 07:30	04/30/23 13:51	1
Perylene-d12	91		70 - 130	04/28/23 07:30	04/30/23 13:51	1

**Lab Sample ID: LCS 380-38338/3-A**  
**Matrix: Water**  
**Analysis Batch: 38525**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 38338**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
2,4'-DDD	1.99	2.02		ug/L		102	70 - 130
2,4'-DDE	1.99	2.13		ug/L		107	70 - 130
2,4'-DDT	1.99	2.24		ug/L		113	70 - 130
2,4-Dinitrotoluene	1.99	1.93		ug/L		97	70 - 130

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-44904-1

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

**Lab Sample ID: LCS 380-38338/3-A**  
**Matrix: Water**  
**Analysis Batch: 38525**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 38338**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,6-Dinitrotoluene	1.99	1.86		ug/L		94	70 - 130
4,4'-DDD	1.99	2.25		ug/L		113	70 - 130
4,4'-DDE	1.99	2.24		ug/L		113	70 - 130
4,4'-DDT	1.99	2.22		ug/L		112	70 - 130
Acenaphthene	1.99	1.89		ug/L		95	70 - 130
Acenaphthylene	1.99	1.97		ug/L		99	70 - 130
Acetochlor	1.99	2.48		ug/L		125	70 - 130
Alachlor	1.99	2.14		ug/L		108	70 - 130
alpha-BHC	1.99	2.05		ug/L		103	70 - 130
alpha-Chlordane	1.99	2.24		ug/L		113	70 - 130
Anthracene	1.99	1.93		ug/L		97	70 - 130
Atrazine	1.99	2.21		ug/L		111	70 - 130
Benz(a)anthracene	1.99	2.18		ug/L		110	70 - 130
Benzo[a]pyrene	1.99	2.05		ug/L		103	70 - 130
Benzo[b]fluoranthene	1.99	2.16		ug/L		109	70 - 130
Benzo[g,h,i]perylene	1.99	2.22		ug/L		112	70 - 130
Benzo[k]fluoranthene	1.99	2.03		ug/L		102	70 - 130
beta-BHC	1.99	2.01		ug/L		101	70 - 130
Bromacil	1.99	2.36		ug/L		119	70 - 130
Butachlor	1.99	2.34		ug/L		118	70 - 130
Butylbenzylphthalate	1.99	2.36		ug/L		119	70 - 130
Caffeine	1.99	1.34		ug/L		68	45 - 137
Chlorobenzilate	1.99	2.49		ug/L		125	70 - 130
Chloroneb	1.99	2.03		ug/L		102	70 - 130
Chlorothalonil (Draconil, Bravo)	1.99	2.06		ug/L		104	70 - 130
Chlorpyrifos	1.99	2.16		ug/L		109	70 - 130
Chrysene	1.99	2.07		ug/L		104	70 - 130
delta-BHC	1.99	2.00		ug/L		101	70 - 130
Di(2-ethylhexyl)adipate	1.99	2.33		ug/L		117	70 - 130
Bis(2-ethylhexyl) phthalate	1.99	2.20		ug/L		111	70 - 130
Diazinon (Qualitative)	1.99	1.74		ug/L		88	15 - 132
Dibenz(a,h)anthracene	1.99	2.24		ug/L		113	70 - 130
Diclorvos (DDVP)	1.99	2.39		ug/L		120	70 - 130
Dieldrin	1.99	2.03		ug/L		102	70 - 130
Diethylphthalate	1.99	2.08		ug/L		105	70 - 130
Dimethylphthalate	1.99	2.12		ug/L		107	70 - 130
Di-n-butyl phthalate	3.97	4.19		ug/L		105	70 - 130
Di-n-octyl phthalate	1.99	1.79		ug/L		90	70 - 130
Endosulfan I (Alpha)	1.99	1.96		ug/L		99	70 - 130
Endosulfan II (Beta)	1.99	2.17		ug/L		109	70 - 130
Endosulfan sulfate	1.99	2.20		ug/L		111	70 - 130
Endrin	1.99	2.20		ug/L		111	70 - 130
Endrin aldehyde	1.99	1.92		ug/L		97	70 - 130
EPTC	1.99	1.97		ug/L		99	70 - 130
Fluoranthene	1.99	2.17		ug/L		109	70 - 130
Fluorene	1.99	2.06		ug/L		104	70 - 130
gamma-Chlordane	1.99	2.24		ug/L		113	70 - 130
Heptachlor	1.99	2.04		ug/L		103	70 - 130
Heptachlor epoxide (isomer B)	1.99	2.24		ug/L		113	70 - 130

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-44904-1

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

**Lab Sample ID: LCS 380-38338/3-A**  
**Matrix: Water**  
**Analysis Batch: 38525**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 38338**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Hexachlorobenzene	1.99	1.96		ug/L		99	70 - 130
Hexachlorocyclopentadiene	1.99	1.95		ug/L		98	70 - 130
Indeno[1,2,3-cd]pyrene	1.99	2.19		ug/L		110	70 - 130
Isophorone	1.99	1.89		ug/L		95	70 - 130
Lindane	1.99	2.00		ug/L		101	70 - 130
Malathion	1.99	2.34		ug/L		118	70 - 130
Methoxychlor	1.99	2.35		ug/L		118	70 - 130
Metolachlor	1.99	2.23		ug/L		112	70 - 130
Metribuzin	1.99	2.32		ug/L		117	70 - 130
Molinate	1.99	2.01		ug/L		101	70 - 130
Naphthalene	1.99	1.71		ug/L		86	70 - 130
Parathion	1.99	2.36		ug/L		119	70 - 130
Pendimethalin (Penoxaline)	1.99	1.95		ug/L		98	70 - 130
Phenanthrene	1.99	1.91		ug/L		96	70 - 130
Propachlor	1.99	2.16		ug/L		109	70 - 130
Pyrene	1.99	2.13		ug/L		107	70 - 130
Simazine	1.99	2.17		ug/L		110	70 - 130
Terbacil	1.99	2.15		ug/L		108	70 - 130
Terbutylazine	1.99	2.20		ug/L		111	70 - 130
Thiobencarb	1.99	2.15		ug/L		108	70 - 130
trans-Nonachlor	1.99	2.23		ug/L		112	70 - 130
Trifluralin	1.99	1.86		ug/L		94	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Nitro-m-xylene	99		70 - 130
Triphenylphosphate	115		70 - 130
Perylene-d12	95		70 - 130

**Lab Sample ID: LCSD 380-38338/4-A**  
**Matrix: Water**  
**Analysis Batch: 38525**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 38338**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2,4'-DDD	1.98	1.96		ug/L		99	70 - 130	3	20
2,4'-DDE	1.98	2.06		ug/L		104	70 - 130	4	20
2,4'-DDT	1.98	2.17		ug/L		110	70 - 130	3	20
2,4-Dinitrotoluene	1.98	2.04		ug/L		103	70 - 130	5	20
2,6-Dinitrotoluene	1.98	1.92		ug/L		97	70 - 130	3	20
4,4'-DDD	1.98	2.17		ug/L		109	70 - 130	4	20
4,4'-DDE	1.98	2.22		ug/L		112	70 - 130	1	20
4,4'-DDT	1.98	2.15		ug/L		108	70 - 130	3	20
Acenaphthene	1.98	1.91		ug/L		97	70 - 130	1	20
Acenaphthylene	1.98	2.01		ug/L		102	70 - 130	2	20
Acetochlor	1.98	2.40		ug/L		121	70 - 130	3	20
Alachlor	1.98	2.07		ug/L		105	70 - 130	3	20
alpha-BHC	1.98	2.07		ug/L		104	70 - 130	1	20
alpha-Chlordane	1.98	2.21		ug/L		111	70 - 130	2	20
Anthracene	1.98	1.96		ug/L		99	70 - 130	1	20

# QC Sample Results

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

Job ID: 380-44904-1

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

**Lab Sample ID: LCSD 380-38338/4-A**  
**Matrix: Water**  
**Analysis Batch: 38525**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 38338**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	RPD Limit
							Limits	RPD		
Atrazine	1.98	2.21		ug/L		112	70 - 130	0	20	
Benz(a)anthracene	1.98	2.11		ug/L		107	70 - 130	3	20	
Benzo[a]pyrene	1.98	2.07		ug/L		104	70 - 130	1	20	
Benzo[b]fluoranthene	1.98	2.21		ug/L		111	70 - 130	2	20	
Benzo[g,h,i]perylene	1.98	2.18		ug/L		110	70 - 130	2	20	
Benzo[k]fluoranthene	1.98	2.12		ug/L		107	70 - 130	4	20	
beta-BHC	1.98	1.99		ug/L		101	70 - 130	1	20	
Bromacil	1.98	2.28		ug/L		115	70 - 130	3	20	
Butachlor	1.98	2.26		ug/L		114	70 - 130	3	20	
Butylbenzylphthalate	1.98	2.24		ug/L		113	70 - 130	5	20	
Caffeine	1.98	1.38		ug/L		69	45 - 137	3	20	
Chlorobenzilate	1.98	2.39		ug/L		121	70 - 130	4	20	
Chloroneb	1.98	2.06		ug/L		104	70 - 130	2	20	
Chlorothalonil (Draconil, Bravo)	1.98	2.05		ug/L		104	70 - 130	0	20	
Chlorpyrifos	1.98	2.10		ug/L		106	70 - 130	3	20	
Chrysene	1.98	2.09		ug/L		105	70 - 130	1	20	
delta-BHC	1.98	1.97		ug/L		99	70 - 130	2	20	
Di(2-ethylhexyl)adipate	1.98	2.24		ug/L		113	70 - 130	4	20	
Bis(2-ethylhexyl) phthalate	1.98	2.13		ug/L		107	70 - 130	3	20	
Diazinon (Qualitative)	1.98	1.76		ug/L		89	15 - 132	1	20	
Dibenz(a,h)anthracene	1.98	2.22		ug/L		112	70 - 130	1	20	
Diclorvos (DDVP)	1.98	2.40		ug/L		121	70 - 130	0	20	
Dieldrin	1.98	1.95		ug/L		98	70 - 130	4	20	
Diethylphthalate	1.98	2.15		ug/L		108	70 - 130	3	20	
Dimethylphthalate	1.98	2.14		ug/L		108	70 - 130	1	20	
Di-n-butyl phthalate	3.96	4.09		ug/L		103	70 - 130	2	20	
Di-n-octyl phthalate	1.98	1.72		ug/L		87	70 - 130	4	20	
Endosulfan I (Alpha)	1.98	1.93		ug/L		97	70 - 130	1	20	
Endosulfan II (Beta)	1.98	2.09		ug/L		105	70 - 130	4	20	
Endosulfan sulfate	1.98	2.10		ug/L		106	70 - 130	5	20	
Endrin	1.98	2.17		ug/L		110	70 - 130	1	20	
Endrin aldehyde	1.98	1.96		ug/L		99	70 - 130	2	20	
EPTC	1.98	1.97		ug/L		99	70 - 130	0	20	
Fluoranthene	1.98	2.14		ug/L		108	70 - 130	2	20	
Fluorene	1.98	2.11		ug/L		106	70 - 130	2	20	
gamma-Chlordane	1.98	2.23		ug/L		112	70 - 130	0	20	
Heptachlor	1.98	2.06		ug/L		104	70 - 130	1	20	
Heptachlor epoxide (isomer B)	1.98	2.15		ug/L		108	70 - 130	4	20	
Hexachlorobenzene	1.98	2.00		ug/L		101	70 - 130	2	20	
Hexachlorocyclopentadiene	1.98	2.03		ug/L		102	70 - 130	4	20	
Indeno[1,2,3-cd]pyrene	1.98	2.15		ug/L		108	70 - 130	2	20	
Isophorone	1.98	1.88		ug/L		95	70 - 130	1	20	
Lindane	1.98	2.04		ug/L		103	70 - 130	2	20	
Malathion	1.98	2.26		ug/L		114	70 - 130	3	20	
Methoxychlor	1.98	2.32		ug/L		117	70 - 130	1	20	
Metolachlor	1.98	2.18		ug/L		110	70 - 130	2	20	
Metribuzin	1.98	2.39		ug/L		120	70 - 130	3	20	
Molinate	1.98	2.06		ug/L		104	70 - 130	3	20	
Naphthalene	1.98	1.72		ug/L		87	70 - 130	1	20	

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-44904-1

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

**Lab Sample ID: LCSD 380-38338/4-A**  
**Matrix: Water**  
**Analysis Batch: 38525**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 38338**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Parathion	1.98	2.28		ug/L		115	70 - 130	4	20
Pendimethalin (Penoxaline)	1.98	1.91		ug/L		97	70 - 130	2	20
Phenanthrene	1.98	1.92		ug/L		97	70 - 130	0	20
Propachlor	1.98	2.19		ug/L		111	70 - 130	1	20
Pyrene	1.98	2.09		ug/L		106	70 - 130	2	20
Simazine	1.98	2.23		ug/L		112	70 - 130	2	20
Terbacil	1.98	2.10		ug/L		106	70 - 130	2	20
Terbutylazine	1.98	2.20		ug/L		111	70 - 130	0	20
Thiobencarb	1.98	2.09		ug/L		105	70 - 130	3	20
trans-Nonachlor	1.98	2.15		ug/L		108	70 - 130	4	20
Trifluralin	1.98	1.89		ug/L		96	70 - 130	2	20

Surrogate	LCSD %Recovery	LCSD Qualifier	LCSD Limits
2-Nitro-m-xylene	96		70 - 130
Triphenylphosphate	108		70 - 130
Perylene-d12	95		70 - 130

**Lab Sample ID: MRL 380-38338/2-A**  
**Matrix: Water**  
**Analysis Batch: 38525**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 38338**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
2,4'-DDD	0.0993	0.147		ug/L		148	50 - 150
2,4'-DDE	0.0993	0.107		ug/L		108	50 - 150
2,4'-DDT	0.0993	0.102		ug/L		102	50 - 150
2,4-Dinitrotoluene	0.0993	0.0745	J	ug/L		75	50 - 150
2,6-Dinitrotoluene	0.0993	0.0830	J	ug/L		84	50 - 150
4,4'-DDD	0.0993	0.110		ug/L		111	50 - 150
4,4'-DDE	0.0993	0.0933	J	ug/L		94	50 - 150
4,4'-DDT	0.0993	0.102		ug/L		103	50 - 150
Acenaphthene	0.0993	0.0981	J	ug/L		99	50 - 150
Acenaphthylene	0.0993	0.0971	J	ug/L		98	50 - 150
Acetochlor	0.0496	0.0587	J	ug/L		118	50 - 150
Alachlor	0.0496	0.0594		ug/L		120	50 - 150
alpha-BHC	0.0993	0.0982	J	ug/L		99	50 - 150
alpha-Chlordane	0.0248	ND		ug/L		113	50 - 150
Anthracene	0.0199	0.0198	J	ug/L		100	50 - 150
Atrazine	0.0496	0.0497	J	ug/L		100	50 - 150
Benz(a)anthracene	0.0496	0.0526		ug/L		106	50 - 150
Benzo[a]pyrene	0.0199	0.0203		ug/L		102	50 - 150
Benzo[b]fluoranthene	0.0199	0.0208		ug/L		105	50 - 150
Benzo[g,h,i]perylene	0.0496	0.0480	J	ug/L		97	50 - 150
Benzo[k]fluoranthene	0.0199	0.0218		ug/L		110	50 - 150
beta-BHC	0.0993	0.105		ug/L		106	50 - 150
Bromacil	0.0993	0.0724	J	ug/L		73	50 - 150
Butachlor	0.0496	0.0591		ug/L		119	50 - 150
Butylbenzylphthalate	0.149	0.186	J	ug/L		125	50 - 150
Caffeine	0.0496	0.0317	J	ug/L		64	50 - 150



# QC Sample Results

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

Job ID: 380-44904-1

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

**Lab Sample ID: MRL 380-38338/2-A**  
**Matrix: Water**  
**Analysis Batch: 38525**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 38338**

Analyte	Spike Added	MRL	MRL	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Chlorobenzilate	0.0993	0.118		ug/L		119	50 - 150
Chloroneb	0.0993	0.103		ug/L		104	50 - 150
Chlorothalonil (Draconil, Bravo)	0.0993	0.0881	J	ug/L		89	50 - 150
Chlorpyrifos	0.0496	0.0587		ug/L		118	50 - 150
Chrysene	0.0199	0.0208		ug/L		105	50 - 150
delta-BHC	0.0993	0.126		ug/L		127	50 - 150
Di(2-ethylhexyl)adipate	0.298	0.386	J	ug/L		130	50 - 150
Bis(2-ethylhexyl) phthalate	0.596	0.711		ug/L		119	50 - 150
Diazinon (Qualitative)	0.0993	0.0906	J	ug/L		91	15 - 132
Dibenz(a,h)anthracene	0.0496	0.0501		ug/L		101	50 - 150
Diclorvos (DDVP)	0.0496	0.0845	^3+	ug/L		170	50 - 150
Dieldrin	0.0993	0.104	J	ug/L		104	50 - 150
Diethylphthalate	0.149	0.178	J	ug/L		120	50 - 150
Dimethylphthalate	0.298	0.307	J	ug/L		103	50 - 150
Di-n-butyl phthalate	0.298	0.359	J	ug/L		121	49 - 243
Di-n-octyl phthalate	0.0993	0.118		ug/L		119	50 - 150
Endosulfan I (Alpha)	0.0993	0.109		ug/L		110	50 - 150
Endosulfan II (Beta)	0.0993	0.129		ug/L		130	50 - 150
Endosulfan sulfate	0.0993	0.106		ug/L		107	50 - 150
Endrin	0.0993	0.102		ug/L		103	50 - 150
Endrin aldehyde	0.0993	ND		ug/L		67	50 - 150
EPTC	0.0993	0.0946	J	ug/L		95	50 - 150
Fluoranthene	0.0496	0.0542	J	ug/L		109	50 - 150
Fluorene	0.0496	0.0508		ug/L		102	50 - 150
gamma-Chlordane	0.0248	0.0267	J	ug/L		108	50 - 150
Heptachlor	0.0397	0.0618	^3+	ug/L		156	50 - 150
Heptachlor epoxide (isomer B)	0.0496	0.0530		ug/L		107	50 - 150
Hexachlorobenzene	0.0496	0.0463	J	ug/L		93	50 - 150
Hexachlorocyclopentadiene	0.0496	0.0439	J	ug/L		88	50 - 150
Indeno[1,2,3-cd]pyrene	0.0496	0.0480	J	ug/L		97	50 - 150
Isophorone	0.0993	0.101	J	ug/L		102	50 - 150
Lindane	0.0397	0.0400		ug/L		101	50 - 150
Malathion	0.0993	0.101		ug/L		102	50 - 150
Methoxychlor	0.0993	0.0985	J	ug/L		99	50 - 150
Metolachlor	0.0496	0.0598		ug/L		120	50 - 150
Metribuzin	0.0496	0.0462	J	ug/L		93	50 - 150
Molinate	0.0993	0.0954	J	ug/L		96	50 - 150
Naphthalene	0.0993	0.0994	J	ug/L		100	50 - 150
Parathion	0.0993	0.100		ug/L		101	50 - 150
Pendimethalin (Penoxaline)	0.0993	0.118		ug/L		118	50 - 150
Phenanthrene	0.0199	0.0220	J	ug/L		111	50 - 150
Propachlor	0.0496	0.0512		ug/L		103	50 - 150
Pyrene	0.0496	0.0535		ug/L		108	50 - 150
Simazine	0.0496	0.0537		ug/L		108	50 - 150
Terbacil	0.0993	0.0917	J	ug/L		92	50 - 150
Terbutylazine	0.0993	0.104		ug/L		105	50 - 150
Thiobencarb	0.0993	0.118	J	ug/L		118	50 - 150
trans-Nonachlor	0.0248	ND		ug/L		104	50 - 150
Trifluralin	0.0993	0.0836	J	ug/L		84	50 - 150

Eurofins Eaton Analytical Pomona



# QC Sample Results

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

Job ID: 380-44904-1

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

<i>Surrogate</i>	<i>MRL %Recovery</i>	<i>MRL Qualifier</i>	<i>Limits</i>
2-Nitro-m-xylene	97		70 - 130
Triphenylphosphate	111		70 - 130
Perylene-d12	95		70 - 130

**Lab Sample ID: 380-44870-AJ-1-A MS**  
**Matrix: Water**  
**Analysis Batch: 38525**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 38338**

<b>Analyte</b>	<b>Sample Result</b>	<b>Sample Qualifier</b>	<b>Spike Added</b>	<b>MS Result</b>	<b>MS Qualifier</b>	<b>Unit</b>	<b>D</b>	<b>%Rec</b>	<b>%Rec Limits</b>
2,4'-DDD	ND		1.95	1.99		ug/L		102	70 - 130
2,4'-DDE	ND		1.95	2.03		ug/L		104	70 - 130
2,4'-DDT	ND		1.95	2.19		ug/L		112	70 - 130
2,4-Dinitrotoluene	ND		1.95	2.15		ug/L		110	70 - 130
2,6-Dinitrotoluene	ND		1.95	2.09		ug/L		107	70 - 130
4,4'-DDD	ND		1.95	2.20		ug/L		113	70 - 130
4,4'-DDE	ND		1.95	2.22		ug/L		114	70 - 130
4,4'-DDT	ND		1.95	2.19		ug/L		112	70 - 130
Acenaphthene	ND		1.95	1.92		ug/L		98	70 - 130
Acenaphthylene	ND		1.95	2.06		ug/L		105	70 - 130
Acetochlor	ND		1.95	2.43		ug/L		124	70 - 130
Alachlor	ND		1.95	2.16		ug/L		110	70 - 130
alpha-BHC	ND		1.95	2.05		ug/L		105	70 - 130
alpha-Chlordane	ND		1.95	2.23		ug/L		114	70 - 130
Anthracene	ND		1.95	1.88		ug/L		96	70 - 130
Atrazine	ND		1.95	2.19		ug/L		112	70 - 130
Benz(a)anthracene	ND		1.95	2.16		ug/L		111	70 - 130
Benzo[a]pyrene	ND		1.95	2.23		ug/L		114	70 - 130
Benzo[b]fluoranthene	ND		1.95	2.37		ug/L		121	70 - 130
Benzo[g,h,i]perylene	ND		1.95	2.27		ug/L		116	70 - 130
Benzo[k]fluoranthene	ND		1.95	2.28		ug/L		117	70 - 130
beta-BHC	ND		1.95	2.00		ug/L		103	70 - 130
Bromacil	ND		1.95	2.46		ug/L		126	70 - 130
Butachlor	ND		1.95	2.28		ug/L		117	70 - 130
Butylbenzylphthalate	ND		1.95	2.44		ug/L		125	70 - 130
Caffeine	0.066		1.95	1.79		ug/L		88	46 - 144
Chlorobenzilate	ND	F1	1.95	2.91	F1	ug/L		149	70 - 130
Chloroneb	ND	F1	1.95	10.7	E F1	ug/L		549	70 - 130
Chlorothalonil (Draconil, Bravo)	ND		1.95	1.96		ug/L		100	70 - 130
Chlorpyrifos	ND		1.95	2.07		ug/L		106	70 - 130
Chrysene	ND		1.95	2.16		ug/L		111	70 - 130
delta-BHC	ND		1.95	2.03		ug/L		104	70 - 130
Di(2-ethylhexyl)adipate	ND		1.95	2.36		ug/L		121	70 - 130
Bis(2-ethylhexyl) phthalate	ND		1.95	2.52		ug/L		117	70 - 130
Diazinon (Qualitative)	ND		1.95	1.89		ug/L		97	15 - 132
Dibenz(a,h)anthracene	ND		1.95	2.34		ug/L		120	70 - 130
Diclorvos (DDVP)	ND	^3+	1.95	2.36		ug/L		121	70 - 130
Dieldrin	ND		1.95	1.96		ug/L		100	70 - 130
Diethylphthalate	ND		1.95	2.14		ug/L		110	70 - 130
Dimethylphthalate	ND		1.95	2.08		ug/L		106	70 - 130
Di-n-butyl phthalate	ND		3.91	3.82		ug/L		93	70 - 130
Di-n-octyl phthalate	ND		1.95	2.11		ug/L		108	70 - 130

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-44904-1

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

**Lab Sample ID: 380-44870-AJ-1-A MS**  
**Matrix: Water**  
**Analysis Batch: 38525**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 38338**

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec
	Result	Qualifier	Added	Result	Qualifier				
Endosulfan I (Alpha)	ND		1.95	1.94		ug/L		99	70 - 130
Endosulfan II (Beta)	ND		1.95	2.16		ug/L		110	70 - 130
Endosulfan sulfate	ND		1.95	2.21		ug/L		113	70 - 130
Endrin	ND		1.95	2.47		ug/L		127	70 - 130
Endrin aldehyde	ND		1.95	1.96		ug/L		100	70 - 130
EPTC	ND		1.95	2.05		ug/L		105	70 - 130
Fluoranthene	ND		1.95	2.16		ug/L		111	70 - 130
Fluorene	ND		1.95	2.08		ug/L		106	70 - 130
gamma-Chlordane	ND		1.95	2.23		ug/L		114	70 - 130
Heptachlor	ND	^3+	1.95	2.15		ug/L		110	70 - 130
Heptachlor epoxide (isomer B)	ND		1.95	2.26		ug/L		116	70 - 130
Hexachlorobenzene	ND		1.95	2.00		ug/L		103	70 - 130
Hexachlorocyclopentadiene	ND		1.95	1.89		ug/L		97	70 - 130
Indeno[1,2,3-cd]pyrene	ND		1.95	2.24		ug/L		115	70 - 130
Isophorone	ND		1.95	1.90		ug/L		97	70 - 130
Lindane	ND		1.95	1.99		ug/L		102	70 - 130
Malathion	ND		1.95	2.34		ug/L		120	70 - 130
Methoxychlor	ND	F1	1.95	2.70	F1	ug/L		138	70 - 130
Metolachlor	ND		1.95	2.33		ug/L		119	70 - 130
Metribuzin	ND		1.95	2.55		ug/L		130	70 - 130
Molinate	ND		1.95	2.14		ug/L		110	70 - 130
Naphthalene	ND		1.95	1.69		ug/L		86	70 - 130
Parathion	ND	F1	1.95	2.60	F1	ug/L		133	70 - 130
Pendimethalin (Penoxaline)	ND		1.95	2.04		ug/L		104	70 - 130
Phenanthrene	ND		1.95	1.87		ug/L		96	70 - 130
Propachlor	ND		1.95	2.22		ug/L		114	70 - 130
Pyrene	ND		1.95	2.13		ug/L		109	70 - 130
Simazine	ND		1.95	2.38		ug/L		122	70 - 130
Terbacil	ND		1.95	2.27		ug/L		116	70 - 130
Terbutylazine	ND		1.95	2.26		ug/L		116	70 - 130
Thiobencarb	ND		1.95	2.16		ug/L		111	70 - 130
trans-Nonachlor	ND		1.95	2.20		ug/L		113	70 - 130
Trifluralin	ND		1.95	1.97		ug/L		101	70 - 130

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
2-Nitro-m-xylene	97		70 - 130
Triphenylphosphate	117		70 - 130
Perylene-d12	98		70 - 130

**Lab Sample ID: 380-44904-1 DU**  
**Matrix: Drinking Water**  
**Analysis Batch: 38525**

**Client Sample ID: MOANALUA WELLS**  
**Prep Type: Total/NA**  
**Prep Batch: 38338**

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

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-44904-1

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

**Lab Sample ID: 380-44904-1 DU**  
**Matrix: Drinking Water**  
**Analysis Batch: 38525**

**Client Sample ID: MOANALUA WELLS**  
**Prep Type: Total/NA**  
**Prep Batch: 38338**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
2,6-Dinitrotoluene	ND		ND		ug/L		NC	20
4,4'-DDD	ND		ND		ug/L		NC	20
4,4'-DDE	ND		ND		ug/L		NC	20
4,4'-DDT	ND		ND		ug/L		NC	20
Acenaphthene	ND		ND		ug/L		NC	20
Acenaphthylene	ND		ND		ug/L		NC	20
Acetochlor	ND		ND		ug/L		NC	20
Alachlor	ND		ND		ug/L		NC	20
alpha-BHC	ND		ND		ug/L		NC	20
alpha-Chlordane	ND		ND		ug/L		NC	20
Anthracene	ND		ND		ug/L		NC	20
Atrazine	ND		ND		ug/L		NC	20
Benz(a)anthracene	ND		ND		ug/L		NC	20
Benzo[a]pyrene	ND		ND		ug/L		NC	20
Benzo[b]fluoranthene	ND		ND		ug/L		NC	20
Benzo[g,h,i]perylene	ND		ND		ug/L		NC	20
Benzo[k]fluoranthene	ND		ND		ug/L		NC	20
beta-BHC	ND		ND		ug/L		NC	20
Bromacil	ND		ND		ug/L		NC	20
Butachlor	ND		ND		ug/L		NC	20
Butylbenzylphthalate	ND		ND		ug/L		NC	20
Caffeine	ND		ND		ug/L		NC	20
Chlorobenzilate	ND		ND		ug/L		NC	20
Chloroneb	ND		ND		ug/L		NC	20
Chlorothalonil (Draconil, Bravo)	ND		ND		ug/L		NC	20
Chlorpyrifos	ND		ND		ug/L		NC	20
Chrysene	ND		ND		ug/L		NC	20
delta-BHC	ND		ND		ug/L		NC	20
Di(2-ethylhexyl)adipate	ND		ND		ug/L		NC	20
Bis(2-ethylhexyl) phthalate	ND		ND		ug/L		NC	20
Diazinon (Qualitative)	ND		ND		ug/L		NC	20
Dibenz(a,h)anthracene	ND		ND		ug/L		NC	20
Diclorvos (DDVP)	ND	^3+	ND		ug/L		NC	20
Dieldrin	ND		ND		ug/L		NC	20
Diethylphthalate	ND		ND		ug/L		NC	20
Dimethylphthalate	ND		ND		ug/L		NC	20
Di-n-butyl phthalate	ND		ND		ug/L		NC	20
Di-n-octyl phthalate	ND		ND		ug/L		NC	20
Endosulfan I (Alpha)	ND		ND		ug/L		NC	20
Endosulfan II (Beta)	ND		ND		ug/L		NC	20
Endosulfan sulfate	ND		ND		ug/L		NC	20
Endrin	ND		ND		ug/L		NC	20
Endrin aldehyde	ND		ND		ug/L		NC	20
EPTC	ND		ND		ug/L		NC	20
Fluoranthene	ND		ND		ug/L		NC	20
Fluorene	ND		ND		ug/L		NC	20
gamma-Chlordane	ND		ND		ug/L		NC	20
Heptachlor	ND	^3+	ND		ug/L		NC	20
Heptachlor epoxide (isomer B)	ND		ND		ug/L		NC	20

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-44904-1

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

**Lab Sample ID: 380-44904-1 DU**  
**Matrix: Drinking Water**  
**Analysis Batch: 38525**

**Client Sample ID: MOANALUA WELLS**  
**Prep Type: Total/NA**  
**Prep Batch: 38338**

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
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
		<b>DU</b>	<b>DU</b>					
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>					
2-Nitro-m-xylene	95		70 - 130					
Triphenylphosphate	108		70 - 130					
Perylene-d12	97		70 - 130					

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

**Lab Sample ID: 106257-B1**  
**Matrix: BlankMatrix**  
**Analysis Batch: O-41040**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: O-41040\_P**

Analyte	Blank	Blank	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1-Methylnaphthalene	ND		0.005	0.001	µg/L		04/20/23 00:00	05/03/23 14:12	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		04/20/23 00:00	05/03/23 14:12	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		04/20/23 00:00	05/03/23 14:12	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		04/20/23 00:00	05/03/23 14:12	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		04/20/23 00:00	05/03/23 14:12	1
Acenaphthene	ND		0.005	0.001	µg/L		04/20/23 00:00	05/03/23 14:12	1
Acenaphthylene	ND		0.005	0.001	µg/L		04/20/23 00:00	05/03/23 14:12	1
Anthracene	ND		0.005	0.001	µg/L		04/20/23 00:00	05/03/23 14:12	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		04/20/23 00:00	05/03/23 14:12	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		04/20/23 00:00	05/03/23 14:12	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		04/20/23 00:00	05/03/23 14:12	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		04/20/23 00:00	05/03/23 14:12	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		04/20/23 00:00	05/03/23 14:12	1

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-44904-1

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

**Lab Sample ID: 106257-B1**  
**Matrix: BlankMatrix**  
**Analysis Batch: O-41040**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: O-41040\_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		04/20/23 00:00	05/03/23 14:12	1
Biphenyl	ND		0.005	0.001	µg/L		04/20/23 00:00	05/03/23 14:12	1
Chrysene	ND		0.005	0.001	µg/L		04/20/23 00:00	05/03/23 14:12	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		04/20/23 00:00	05/03/23 14:12	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		04/20/23 00:00	05/03/23 14:12	1
Dibenzothiophene	ND		0.005	0.001	µg/L		04/20/23 00:00	05/03/23 14:12	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		04/20/23 00:00	05/03/23 14:12	1
Fluoranthene	ND		0.005	0.001	µg/L		04/20/23 00:00	05/03/23 14:12	1
Fluorene	ND		0.005	0.001	µg/L		04/20/23 00:00	05/03/23 14:12	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		04/20/23 00:00	05/03/23 14:12	1
Naphthalene	ND		0.005	0.001	µg/L		04/20/23 00:00	05/03/23 14:12	1
Perylene	ND		0.005	0.001	µg/L		04/20/23 00:00	05/03/23 14:12	1
Phenanthrene	ND		0.005	0.001	µg/L		04/20/23 00:00	05/03/23 14:12	1
Pyrene	ND		0.005	0.001	µg/L		04/20/23 00:00	05/03/23 14:12	1

Surrogate	Blank %Recovery	Blank Qualifier	Limits	Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	78		27 - 133	04/20/23 00:00	05/03/23 14:12	1
(d10-Phenanthrene)	81		43 - 129	04/20/23 00:00	05/03/23 14:12	1
(d12-Chrysene)	64		52 - 144	04/20/23 00:00	05/03/23 14:12	1
(d12-Perylene)	81		36 - 161	04/20/23 00:00	05/03/23 14:12	1
(d8-Naphthalene)	78		25 - 125	04/20/23 00:00	05/03/23 14:12	1

**Lab Sample ID: 106257-BS1**  
**Matrix: BlankMatrix**  
**Analysis Batch: O-41040**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: O-41040\_P**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1-Methylnaphthalene	0.5	0.364		µg/L		73	31 - 128
1-Methylphenanthrene	0.5	0.377		µg/L		75	66 - 127
2,3,5-Trimethylnaphthalene	0.5	0.395		µg/L		79	55 - 122
2,6-Dimethylnaphthalene	0.5	0.379		µg/L		76	48 - 120
2-Methylnaphthalene	0.5	0.298		µg/L		60	47 - 130
Acenaphthene	0.5	0.414		µg/L		83	53 - 131
Acenaphthylene	0.5	0.371		µg/L		74	43 - 140
Anthracene	0.5	0.39		µg/L		78	58 - 135
Benz[a]anthracene	0.5	0.282		µg/L		56	55 - 145
Benzo[a]pyrene	0.5	0.413		µg/L		83	51 - 143
Benzo[b]fluoranthene	0.5	0.347		µg/L		69	46 - 165
Benzo[e]pyrene	0.5	0.365		µg/L		73	42 - 152
Benzo[g,h,i]perylene	0.5	0.363		µg/L		73	63 - 133
Benzo[k]fluoranthene	0.5	0.38		µg/L		76	56 - 145
Biphenyl	0.5	0.347		µg/L		69	56 - 119
Chrysene	0.5	0.319		µg/L		64	56 - 141
Dibenz[a,h]anthracene	0.5	0.38		µg/L		76	55 - 150
Dibenzo[a,l]pyrene	0.5	0.53		µg/L		106	50 - 150
Dibenzothiophene	0.5	0.394		µg/L		79	46 - 126
Disalicylidenepropanediamine	50	41.9		µg/L		84	50 - 150
Fluoranthene	0.5	0.471		µg/L		94	60 - 146

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-44904-1

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

**Lab Sample ID: 106257-BS1**  
**Matrix: BlankMatrix**  
**Analysis Batch: O-41040**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: O-41040\_P**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Fluorene	0.5	0.392		µg/L		78	58 - 131
Indeno[1,2,3-cd]pyrene	0.5	0.384		µg/L		77	50 - 151
Naphthalene	0.5	0.362		µg/L		72	41 - 126
Perylene	0.5	0.408		µg/L		82	48 - 141
Phenanthrene	0.5	0.418		µg/L		84	67 - 127
Pyrene	0.5	0.467		µg/L		93	54 - 156

Surrogate	LCS %Recovery	LCS Qualifier	Limits
(d10-Acenaphthene)	77		27 - 133
(d10-Phenanthrene)	78		43 - 129
(d12-Chrysene)	60		52 - 144
(d12-Perylene)	78		36 - 161
(d8-Naphthalene)	68		25 - 125

**Lab Sample ID: 106257-BS2**  
**Matrix: BlankMatrix**  
**Analysis Batch: O-41040**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: O-41040\_P**

Analyte	Spike Added	LCS DUP Result	LCS DUP Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1-Methylnaphthalene	0.5	0.372		µg/L		74	31 - 128	1	30
1-Methylphenanthrene	0.5	0.369		µg/L		74	66 - 127	1	30
2,3,5-Trimethylnaphthalene	0.5	0.424		µg/L		85	55 - 122	7	30
2,6-Dimethylnaphthalene	0.5	0.37		µg/L		74	48 - 120	3	30
2-Methylnaphthalene	0.5	0.327		µg/L		65	47 - 130	8	30
Acenaphthene	0.5	0.405		µg/L		81	53 - 131	2	30
Acenaphthylene	0.5	0.397		µg/L		79	43 - 140	7	30
Anthracene	0.5	0.399		µg/L		80	58 - 135	3	30
Benz[a]anthracene	0.5	0.321		µg/L		64	55 - 145	13	30
Benzo[a]pyrene	0.5	0.38		µg/L		76	51 - 143	9	30
Benzo[b]fluoranthene	0.5	0.334		µg/L		67	46 - 165	3	30
Benzo[e]pyrene	0.5	0.362		µg/L		72	42 - 152	1	30
Benzo[g,h,i]perylene	0.5	0.391		µg/L		78	63 - 133	7	30
Benzo[k]fluoranthene	0.5	0.386		µg/L		77	56 - 145	1	30
Biphenyl	0.5	0.366		µg/L		73	56 - 119	6	30
Chrysene	0.5	0.318		µg/L		64	56 - 141	0	30
Dibenz[a,h]anthracene	0.5	0.404		µg/L		81	55 - 150	6	30
Dibenzo[a,l]pyrene	0.5	0.464		µg/L		93	50 - 150	13	30
Dibenzothiophene	0.5	0.389		µg/L		78	46 - 126	1	30
Disalicylidenepropanediamine	50	32.9		µg/L		66	50 - 150	24	30
Fluoranthene	0.5	0.446		µg/L		89	60 - 146	5	30
Fluorene	0.5	0.417		µg/L		83	58 - 131	6	30
Indeno[1,2,3-cd]pyrene	0.5	0.371		µg/L		74	50 - 151	4	30
Naphthalene	0.5	0.377		µg/L		75	41 - 126	4	30
Perylene	0.5	0.353		µg/L		71	48 - 141	14	30
Phenanthrene	0.5	0.404		µg/L		81	67 - 127	4	30
Pyrene	0.5	0.418		µg/L		84	54 - 156	10	30

# QC Sample Results

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

Job ID: 380-44904-1

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

**Lab Sample ID: 106257-BS2**  
**Matrix: BlankMatrix**  
**Analysis Batch: O-41040**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: O-41040\_P**

Surrogate	LCS DUP %Recovery	LCS DUP Qualifier	Limits
(d10-Acenaphthene)	78		27 - 133
(d10-Phenanthrene)	74		43 - 129
(d12-Chrysene)	64		52 - 144
(d12-Perylene)	81		36 - 161
(d8-Naphthalene)	73		25 - 125

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

**Lab Sample ID: 23VG39D14B**  
**Matrix: WATER**  
**Analysis Batch: 23VG39D14**

**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			04/27/23 12:09	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
BROMOFLUOROBENZENE			70 - 130		04/27/23 12:09	1

**Lab Sample ID: 23VG39D14L**  
**Matrix: WATER**  
**Analysis Batch: 23VG39D14**

**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	0.524		mg/L		105	60 - 130

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

**Lab Sample ID: 23D295-01M**  
**Matrix: WATER**  
**Analysis Batch: 23VG39D14**

**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	0.515		mg/L		103	50 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
BROMOFLUOROBENZENE	113		60 - 140

**Lab Sample ID: 23D295-01S**  
**Matrix: WATER**  
**Analysis Batch: 23VG39D14**

**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	0.504		mg/L		101	50 - 130	2	30

Surrogate	MSD %Recovery	MSD Qualifier	Limits
BROMOFLUOROBENZENE	115		60 - 140

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-44904-1

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

**Lab Sample ID: 23DSD033WB**  
**Matrix: WATER**  
**Analysis Batch: 23DSD033W**

**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			04/28/23 15:42	1
JP5	ND	U	0.050		mg/L			04/28/23 15:42	1
JP8	ND	U	0.050		mg/L			04/28/23 15:42	1
MOTOR OIL	ND	U	0.050		mg/L			04/28/23 15:42	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
BROMOBENZENE					04/28/23 15:42	1
HEXACOSANE					04/28/23 15:42	1

**Lab Sample ID: 23DSD033WL**  
**Matrix: WATER**  
**Analysis Batch: 23DSD033W**

**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	2.26		mg/L		90	50 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
BROMOBENZENE	66		60 - 130
HEXACOSANE	90		60 - 130

**Lab Sample ID: 23J5D033WL**  
**Matrix: WATER**  
**Analysis Batch: 23DSD033W**

**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	2.23		mg/L		89	30 - 160

Surrogate	LCS %Recovery	LCS Qualifier	Limits
BROMOBENZENE	72		60 - 130
HEXACOSANE	79		60 - 130

**Lab Sample ID: 23J8D033WL**  
**Matrix: WATER**  
**Analysis Batch: 23DSD033W**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
JP8	2.50	2.65		mg/L		106	30 - 160

Surrogate	LCS %Recovery	LCS Qualifier	Limits
BROMOBENZENE	97		60 - 130
HEXACOSANE	80		60 - 130



# QC Association Summary

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

Job ID: 380-44904-1

## GC/MS Semi VOA

### Prep Batch: 38338

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-44904-1	MOANALUA WELLS	Total/NA	Drinking Water	525.2	
MB 380-38338/1-A	Method Blank	Total/NA	Water	525.2	
LCS 380-38338/3-A	Lab Control Sample	Total/NA	Water	525.2	
LCSD 380-38338/4-A	Lab Control Sample Dup	Total/NA	Water	525.2	
MRL 380-38338/2-A	Lab Control Sample	Total/NA	Water	525.2	
380-44870-AJ-1-A MS	Matrix Spike	Total/NA	Water	525.2	
380-44904-1 DU	MOANALUA WELLS	Total/NA	Drinking Water	525.2	

### Analysis Batch: 38525

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-44904-1	MOANALUA WELLS	Total/NA	Drinking Water	525.2	38338
MB 380-38338/1-A	Method Blank	Total/NA	Water	525.2	38338
LCS 380-38338/3-A	Lab Control Sample	Total/NA	Water	525.2	38338
LCSD 380-38338/4-A	Lab Control Sample Dup	Total/NA	Water	525.2	38338
MRL 380-38338/2-A	Lab Control Sample	Total/NA	Water	525.2	38338
380-44870-AJ-1-A MS	Matrix Spike	Total/NA	Water	525.2	38338
380-44904-1 DU	MOANALUA WELLS	Total/NA	Drinking Water	525.2	38338

## Subcontract

### Analysis Batch: O-41040

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-44904-1	MOANALUA WELLS	Total/NA	Drinking Water	625 PAH Physis LL (EAL) + TICs	O-41040_P
106257-B1	Method Blank	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-41040_P
106257-BS1	Lab Control Sample	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-41040_P
106257-BS2	Lab Control Sample Dup	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-41040_P

### Analysis Batch: 23DSD033W

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-44904-1	MOANALUA WELLS	Total/NA	Drinking Water	8015 LL DRO/MRO/JP5/J P8	
23DSD033WB	Method Blank	Total/NA	WATER	8015 LL DRO/MRO/JP5/J P8	
23DSD033WL	Lab Control Sample	Total/NA	WATER	8015 LL DRO/MRO/JP5/J P8	
23J5D033WL	Lab Control Sample	Total/NA	WATER	8015 LL DRO/MRO/JP5/J P8	
23J8D033WL	Lab Control Sample	Total/NA	WATER	8015 LL DRO/MRO/JP5/J P8	

### Analysis Batch: 23VG39D14

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-44904-1	MOANALUA WELLS	Total/NA	Drinking Water	8015 Gas (Purgeable) LL (EAL)	

Eurofins Eaton Analytical Pomona

# QC Association Summary

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

Job ID: 380-44904-1

## Subcontract (Continued)

### Analysis Batch: 23VG39D14 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-44904-2	TB MOANALUA WELLS	Total/NA	Water	8015 Gas (Purgeable) LL (EAL)	
23VG39D14B	Method Blank	Total/NA	WATER	8015 Gas (Purgeable) LL (EAL)	
23VG39D14L	Lab Control Sample	Total/NA	WATER	8015 Gas (Purgeable) LL (EAL)	
23D295-01M	Matrix Spike	Total/NA	WATER	8015 Gas (Purgeable) LL (EAL)	
23D295-01S	Matrix Spike Duplicate	Total/NA	WATER	8015 Gas (Purgeable) LL (EAL)	

### Prep Batch: O-41040\_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-44904-1	MOANALUA WELLS	Total/NA	Drinking Water	EPA_625	
106257-B1	Method Blank	Total/NA	BlankMatrix	EPA_625	
106257-BS1	Lab Control Sample	Total/NA	BlankMatrix	EPA_625	
106257-BS2	Lab Control Sample Dup	Total/NA	BlankMatrix	EPA_625	



# Lab Chronicle

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

Job ID: 380-44904-1

## Client Sample ID: MOANALUA WELLS

Lab Sample ID: 380-44904-1

Date Collected: 04/21/23 10:00

Matrix: Drinking Water

Date Received: 04/25/23 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	525.2			38338	OTM3	EA POM	04/28/23 07:30
Total/NA	Analysis	525.2		1	38525	Q8LA	EA POM	04/30/23 18:11
Total/NA	Prep	EPA_625		1	O-41040_P			04/26/23 00:00
Total/NA	Analysis	625 PAH Physis LL (EAL) + TICs		1	O-41040	YC		05/04/23 02:18
Total/NA	Analysis	8015 Gas (Purgeable) LL (EAL)		1	23VG39D14	SCerva		04/27/23 13:58
Total/NA	Analysis	8015 LL DRO/MRO/JP5/JP8		1	23DSD033W	SDees		04/28/23 20:21

## Client Sample ID: TB MOANALUA WELLS

Lab Sample ID: 380-44904-2

Date Collected: 04/21/23 10:00

Matrix: Water

Date Received: 04/25/23 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015 Gas (Purgeable) LL (EAL)		1	23VG39D14	SCerva		04/27/23 15:46

**Laboratory References:**

= Physis Environmental Laboratories, 1904 Wright Circle, Anaheim, CA 92806

EA POM = Eurofins Eaton Analytical Pomona, 941 Corporate Center Drive, Pomona, CA 91768-2642, TEL (626)386-1100

# Accreditation/Certification Summary

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

Job ID: 380-44904-1

## Laboratory: Eurofins Eaton Analytical Pomona

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

Authority	Program	Identification Number	Expiration Date
Hawaii	State	CA00006	02-29-24

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	Dimethylphthalate
525.2	525.2	Drinking Water	Di-n-butyl phthalate
525.2	525.2	Drinking Water	Di-n-octyl phthalate
525.2	525.2	Drinking Water	Endosulfan I (Alpha)
525.2	525.2	Drinking Water	Endosulfan II (Beta)
525.2	525.2	Drinking Water	Endosulfan sulfate
525.2	525.2	Drinking Water	Endrin aldehyde
525.2	525.2	Drinking Water	EPTC
525.2	525.2	Drinking Water	Fluoranthene
525.2	525.2	Drinking Water	Fluorene
525.2	525.2	Drinking Water	gamma-Chlordane
525.2	525.2	Drinking Water	Indeno[1,2,3-cd]pyrene
525.2	525.2	Drinking Water	Isophorone

# Accreditation/Certification Summary

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

Job ID: 380-44904-1

## Laboratory: Eurofins Eaton Analytical Pomona (Continued)

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

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

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

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

# Method Summary

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

Job ID: 380-44904-1

Method	Method Description	Protocol	Laboratory
525.2	Semivolatile Organic Compounds (GC/MS)	EPA	EA POM
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 POM

**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 POM = Eurofins Eaton Analytical Pomona, 941 Corporate Center Drive, Pomona, CA 91768-2642, TEL (626)386-1100



# Sample Summary

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

Job ID: 380-44904-1

---

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	PWSID Number
380-44904-1	MOANALUA WELLS	Drinking Water	04/21/23 10:00	04/25/23 09:20	HI0000331
380-44904-2	TB MOANALUA WELLS	Water	04/21/23 10:00	04/25/23 09:20	

- 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: 05-22-2023  
EMAX Batch No.: 23D295

Attn: Jackie Contreras

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

Subject: Laboratory Report  
Project: 380-44904

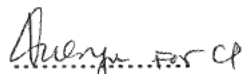
Enclosed is the Laboratory report for samples received on 04/26/23.  
The data reported relate only to samples listed below :

Sample ID	Control #	Col Date	Matrix	Analysis
380-44904-1	D295-01	04/21/23	WATER	TPH GASOLINE TPH
380-44904-2	D295-02	04/21/23	WATER	TPH GASOLINE
380-44904-1MS	D295-01M	04/21/23	WATER	TPH GASOLINE
380-44904-1MSD	D295-01S	04/21/23	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 CA002912022-24  
ANAB Accredited DoD ELAP and ISO/IEC 17025 Certificate Number L2278 Testing  
California ELAP Accredited Certificate Number 2672







Type of Delivery <input type="checkbox"/> Fedex <input type="checkbox"/> UPS <input checked="" type="checkbox"/> GSO <input type="checkbox"/> Others <input type="checkbox"/> EMAX Courier <input checked="" type="checkbox"/> Client Delivery	Airbill / Tracking Number	ECN <u>230295</u> Recipient <u>Shovin Edmora</u> Date <u>04/20/23</u> Time <u>1310</u>
--	---------------------------	--

**COC INSPECTION**

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

Note: \_\_\_\_\_

**PACKAGING INSPECTION**

Container	<input checked="" type="checkbox"/> Cooler	<input type="checkbox"/> Box	<input type="checkbox"/> Other
Condition <u>correction</u>	<input type="checkbox"/> Custody Seal	<input type="checkbox"/> Intact	<input type="checkbox"/> Damaged
Packaging <u>factor: -0.2</u>	<input type="checkbox"/> Bubble Pack	<input type="checkbox"/> Styrofoam	<input type="checkbox"/> Popcorn
Temperatures (Cool, ≤6 °C but not frozen)	<input checked="" type="checkbox"/> Cooler <u>4.8/4.6</u> °C	<input type="checkbox"/> Cooler 2 _____ °C	<input type="checkbox"/> Cooler 3 _____ °C
Thermometer: <u>A - S/N 221052760</u>	<input type="checkbox"/> Cooler 6 _____ °C	<input type="checkbox"/> Cooler 7 _____ °C	<input type="checkbox"/> Cooler 8 _____ °C
	<input type="checkbox"/> Cooler 9 _____ °C	<input type="checkbox"/> Cooler 10 _____ °C	

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

**DISCREPANCIES**

LabSampleID	LabSampleContainerID	Code	ClientSample Label ID / Information	Corrective Action
<u>2</u>	<u>7.8</u>	<u>D7</u>	<u>second date reads 4/10/23</u>	<u>R1</u>
<i>am/26/23</i>				
<i>AB 4/28/23</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:**  
 SAMPLE MATRIX IS DRINKING WATER?  YES  NO

**LEGEND:**

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

**REVIEWS:**

Sample Labeling <u>Nahdeen Lacana</u>	SRF <u>[Signature]</u>	PM <u>[Signature]</u>
Date <u>04/26/23</u>	Date <u>4/26/23</u>	Date <u>4/28/23</u>

REPORT ID: 23D295

## 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

380-44904

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

SDG#: 23D295



CASE NARRATIVE

Client : EUROFINS EATON ANALYTICAL

Project: 380-44904

SDG : 23D295

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

A total of two(2) water samples were received on 04/26/23 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.

Method Blank

Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. VG39D14B - 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. VG39D14L/VG39D14C 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 D295-01M/D295-01S. 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.



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

# SAMPLE RESULTS







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

Client	: EUROFINS EATON ANALYTICAL	Date Collected:	04/21/23 10:00
Project	: 380-44904	Date Received:	04/26/23
Batch No.	: 23D295	Date Extracted:	04/27/23 15:46
Sample ID	: 380-44904-2	Date Analyzed:	04/27/23 15:46
Lab Samp ID:	D295-02	Dilution Factor:	1
Lab File ID:	ED27011A	Matrix:	WATER
Ext Btch ID:	23VG39D14	% Moisture:	NA
Calib. Ref.:	ED27003A	Instrument ID:	39

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

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

Notes:

Parameter H-C Range  
Gasoline C6-C10

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

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

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

# QC SUMMARIES

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

Client : EUROFINS EATON ANALYTICAL	Date Collected: 04/27/23 12:09
Project : 380-44904	Date Received: 04/27/23
Batch No. : 23D295	Date Extracted: 04/27/23 12:09
Sample ID : MBLK1W	Date Analyzed: 04/27/23 12:09
Lab Samp ID: VG39D14B	Dilution Factor: 1
Lab File ID: ED27005A	Matrix: WATER
Ext Btch ID: 23VG39D14	% Moisture: NA
Calib. Ref.: ED27003A	Instrument ID: 39

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)	
GASOLINE	ND	0.020	0.010	
SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromofluorobenzene	0.0358	0.0400	90	60-140

Notes:

Parameter      H-C Range  
Gasoline        C6-C10

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

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

EMAX QUALITY CONTROL DATA  
LAB CONTROL SAMPLE ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL  
PROJECT : 380-44904  
BATCH NO. : 23D295  
METHOD : 5030B/8015B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR:	1	1	
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: VG39D14B	VG39D14L	VG39D14C
LAB FILE ID	: ED27005A	ED27006A	ED27007A
DATE PREPARED	: 04/27/23 12:09	04/27/23 12:45	04/27/23 13:22
DATE ANALYZED	: 04/27/23 12:09	04/27/23 12:45	04/27/23 13:22
PREP BATCH	: 23VG39D14	23VG39D14	23VG39D14
CALIBRATION REF:	ED27003A	ED27003A	ED27003A

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	0.524	105	0.500	0.511	102	3	60-130	30

SURROGATE PARAMETER	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	QCLimit (%)
Bromofluorobenzene	0.0400	0.0464	116	0.0400	0.0463	116	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 : 380-44904  
BATCH NO. : 23D295  
METHOD : 5030B/8015B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR:	1	1	1
SAMPLE ID	: 380-44904-1	380-44904-1MS	380-44904-1MSD
LAB SAMPLE ID	: D295-01	D295-01M	D295-01S
LAB FILE ID	: ED27008A	ED27009A	ED27010A
DATE PREPARED	: 04/27/23 13:58	04/27/23 14:34	04/27/23 15:10
DATE ANALYZED	: 04/27/23 13:58	04/27/23 14:34	04/27/23 15:10
PREP BATCH	: 23VG39D14	23VG39D14	23VG39D14
CALIBRATION REF:	ED27003A	ED27003A	ED27003A

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	0.515	103	0.500	0.504	101	2	50-130	30

SURROGATE PARAMETER	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	QCLimit (%)
Bromofluorobenzene	0.0400	0.0450	113	0.0400	0.0458	115	60-140

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

LABORATORY REPORT FOR

EUROFINS EATON ANALYTICAL

380-44904

METHOD 3520C/8015B  
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

SDG#: 23D295



CASE NARRATIVE

Client : EUROFINS EATON ANALYTICAL

Project: 380-44904

SDG : 23D295

METHOD 3520C/8015B  
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

One(1) water sample was received on 04/26/23 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.

Method Blank

Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. DSD033WB - result was compliant to project requirement. Refer to sample result summary form for details.

Lab Control Sample

Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) LCS was analyzed. Percent recovery for Diesel was within LCS QC limits in DSD033WL. Refer to LCS summary form for details.

Matrix QC Sample

Matrix spike sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of MS/MSD was analyzed. Diesel was within MS QC limits in 23D232-01M/23D232-01S. Refer to Matrix QC summary form for details.

Surrogate

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

Sample Analysis

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

CASE NARRATIVE

Client : EUROFINS EATON ANALYTICAL

Project: 380-44904

SDG : 23D295

METHOD 3520C/8015B  
PETROLEUM HYDROCARBONS BY EXTRACTION

One(1) water sample was received on 04/26/23 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.

Method Blank

Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. DSD033WB - result was compliant to project requirement. Refer to sample result summary form for details.

Lab Control Sample

Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) LCS was analyzed. Percent recovery for JP5 was within LCS QC limits in J5D033WL. 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. JP5 was within MS QC limits in 23D232-01M/23D232-01S. Refer to Matrix QC summary form for details.

Surrogate

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

Sample Analysis

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



CASE NARRATIVE

Client : EUROFINS EATON ANALYTICAL

Project: 380-44904

SDG : 23D295

METHOD 3520C/8015B  
PETROLEUM HYDROCARBONS BY EXTRACTION

One(1) water sample was received on 04/26/23 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.

Method Blank

Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. DSD033WB - result was compliant to project requirement. Refer to sample result summary form for details.

Lab Control Sample

Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) LCS was analyzed. Percent recovery for JP8 was within LCS QC limits in J8D033WL. 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. JP8 was within MS QC limits in 23D234-01M/23D234-01S. Refer to Matrix QC summary form for details.

Surrogate

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

Sample Analysis

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





LAB CHRONICLE  
PETROLEUM HYDROCARBONS BY EXTRACTION

Client : EUROFINS EATON ANALYTICAL  
Project : 380-44904

SDG NO. : 23D295  
Instrument ID : D5

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis Date/Time	Extraction Date/Time	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	DSD033WB	1	NA	04/28/2315:42	04/27/2314:30	LD28009A	LD28005A	23DSD033W	Method Blank
LCS1W	J8D033WL	1	NA	04/28/2316:38	04/27/2314:30	LD28012A	LD28005A	23DSD033W	Lab Control Sample (LCS)
380-44904-1	D295-01	1	NA	04/28/2320:21	04/27/2314:30	LD28024A	LD28005A	23DSD033W	Field Sample

FN - Filename  
& Moist - Percent Moisture



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

# SAMPLE RESULTS

METHOD 3520C/8015B  
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : EUROFINS EATON ANALYTICAL   Date Collected: 04/21/23 10:00
Project     : 380-44904                   Date Received: 04/26/23
Batch No.   : 23D295                       Date Extracted: 04/27/23 14:30
Sample ID   : 380-44904-1                 Date Analyzed: 04/28/23 20:21
Lab Samp ID: 23D295-01                   Dilution Factor: 1
Lab File ID: LD28024A                     Matrix: WATER
Ext Btch ID: 23DSD033W                   % Moisture: NA
Calib. Ref.: LD28003A                     Instrument ID: D5
=====

```

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)	
Diesel	ND	0.027	0.013	
Motor Oil	ND	0.053	0.027	
SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.386	0.530	73	60-130
Hexacosane	0.114	0.132	86	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 : 940ml                      Final Volume : 5ml  
Prepared by    : JMuert                            Analyzed by : SDeeso

METHOD 3520C/8015B  
 PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: EUROFINS EATON ANALYTICAL	Date Collected:	04/21/23 10:00
Project	: 380-44904	Date Received:	04/26/23
Batch No.	: 23D295	Date Extracted:	04/27/23 14:30
Sample ID	: 380-44904-1	Date Analyzed:	04/28/23 20:21
Lab Samp ID:	23D295-01	Dilution Factor:	1
Lab File ID:	LD28024A	Matrix:	WATER
Ext Btch ID:	23DSD033W	% Moisture:	NA
Calib. Ref.:	LD28004A	Instrument ID:	D5

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)	
JP5	ND	0.053	0.027	
SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.386	0.530	73	60-130
Hexacosane	0.114	0.132	86	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 : 940ml

Final Volume : 5ml

Prepared by : JMuert

Analyzed by : SDeeso

METHOD 3520C/8015B  
 PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : EUROFINS EATON ANALYTICAL   Date Collected: 04/21/23 10:00
Project     : 380-44904                 Date Received: 04/26/23
Batch No.   : 23D295                    Date Extracted: 04/27/23 14:30
Sample ID   : 380-44904-1              Date Analyzed: 04/28/23 20:21
Lab Samp ID: 23D295-01                 Dilution Factor: 1
Lab File ID: LD28024A                  Matrix: WATER
Ext Btch ID: 23DSD033W                % Moisture: NA
Calib. Ref.: LD28005A                 Instrument ID: D5
=====
    
```

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
JP8	ND	0.053	0.027

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.386	0.530	73	60-130
Hexacosane	0.114	0.132	86	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 : 940ml

Final Volume : 5ml

Prepared by : JMuert

Analyzed by : SDeeso



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

# QC SUMMARIES



EMAX QUALITY CONTROL DATA  
LAB CONTROL SAMPLE ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL  
PROJECT : 380-44904  
BATCH NO. : 23D295  
METHOD : 3520C/8015B

MATRIX : WATER % MOISTURE:NA  
DILUTION FACTOR: 1 1  
SAMPLE ID : MBLK1W LCS1W  
LAB SAMPLE ID : DSD033WB DSD033WL  
LAB FILE ID : LD28009A LD28010A  
DATE PREPARED : 04/27/23 14:30 04/27/23 14:30  
DATE ANALYZED : 04/28/23 15:42 04/28/23 16:01  
PREP BATCH : 23DSD033W 23DSD033W  
CALIBRATION REF: LD28003A LD28003A

ACCESSION:

PARAMETERS	MBResult (mg/L)	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	QCLimit (%)
Diesel	ND	2.50	2.26	90	50-130

SURROGATE PARAMETERS	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	QCLimit (%)
Bromobenzene	0.500	0.331	66	60-130
Hexacosane	0.125	0.113	90	60-130

MB: Method Blank sample LCS: Lab Control Sample

EMAX QUALITY CONTROL DATA  
MS/MSD ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL  
PROJECT : 380-44256  
BATCH NO. : 23D232  
METHOD : 3520C/8015B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR:	1	1	1
SAMPLE ID	: 380-44256-1	380-44256-1MS	380-44256-1MSD
LAB SAMPLE ID	: 23D232-01	23D232-01M	23D232-01S
LAB FILE ID	: LD28013A	LD28014A	LD28015A
DATE PREPARED	: 04/27/23 14:30	04/27/23 14:30	04/27/23 14:30
DATE ANALYZED	: 04/28/23 16:57	04/28/23 17:16	04/28/23 17:34
PREP BATCH	: 23DSD033W	23DSD033W	23DSD033W
CALIBRATION REF:	LD28003A	LD28003A	LD28003A

ACCESSION:

PARAMETERS	PSResult (mg/L)	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Diesel	ND	2.72	2.39	88	2.62	2.45	93	2	50-130	30

SURROGATE PARAMETERS	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	QCLimit (%)
Bromobenzene	0.545	0.379	70	0.525	0.388	74	60-130
Hexacosane	0.136	0.129	95	0.131	0.118	90	60-130

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

METHOD 3520C/8015B  
 PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : EUROFINS EATON ANALYTICAL   Date Collected: 04/27/23 14:30
Project    : 380-44904                   Date Received: 04/27/23
Batch No.  : 23D295                       Date Extracted: 04/27/23 14:30
Sample ID  : MBLK1W                       Date Analyzed: 04/28/23 15:42
Lab Samp ID: DSD033WB                    Dilution Factor: 1
Lab File ID: LD28009A                     Matrix: WATER
Ext Btch ID: 23DSD033W                    % Moisture: NA
Calib. Ref.: LD28004A                     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	0.364	0.500	73	60-130
Hexacosane	0.106	0.125	85	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 : JMuert

Analyzed by : SDeeso

EMAX QUALITY CONTROL DATA  
LAB CONTROL SAMPLE ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL  
PROJECT : 380-44904  
BATCH NO. : 23D295  
METHOD : 3520C/8015B

MATRIX : WATER % MOISTURE:NA  
DILUTION FACTOR: 1 1  
SAMPLE ID : MBLK1W LCS1W  
LAB SAMPLE ID : DSD033WB J5D033WL  
LAB FILE ID : LD28009A LD28011A  
DATE PREPARED : 04/27/23 14:30 04/27/23 14:30  
DATE ANALYZED : 04/28/23 15:42 04/28/23 16:20  
PREP BATCH : 23DSD033W 23DSD033W  
CALIBRATION REF: LD28004A LD28004A

ACCESSION:

PARAMETERS	MBResult (mg/L)	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	QCLimit (%)
JP5	ND	2.50	2.23	89	30-160

SURROGATE PARAMETERS	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	QCLimit (%)
Bromobenzene	0.500	0.362	72	60-130
Hexacosane	0.125	0.0986	79	60-130

MB: Method Blank sample LCS: Lab Control Sample

EMAX QUALITY CONTROL DATA  
MS/MSD ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL  
PROJECT : 380-44256  
BATCH NO. : 23D232  
METHOD : 3520C/8015B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR:	1	1	1
SAMPLE ID	: 380-44256-1	380-44256-1MS	380-44256-1MSD
LAB SAMPLE ID	: 23D232-01	23D232-01M	23D232-01S
LAB FILE ID	: LD28013A	LD28016A	LD28017A
DATE PREPARED	: 04/27/23 14:30	04/27/23 14:30	04/27/23 14:30
DATE ANALYZED	: 04/28/23 16:57	04/28/23 17:53	04/28/23 18:12
PREP BATCH	: 23DSD033W	23DSD033W	23DSD033W
CALIBRATION REF:	LD28004A	LD28004A	LD28004A

ACCESSION:

PARAMETERS	PSResult (mg/L)	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
JP5	ND	2.58	2.91	113	2.53	2.92	116	0	30-160	30

SURROGATE PARAMETERS	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	QCLimit (%)
Bromobenzene	0.515	0.442	86	0.505	0.436	86	60-130
Hexacosane	0.129	0.107	83	0.126	0.105	83	60-130

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

METHOD 3520C/8015B  
 PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : EUROFINS EATON ANALYTICAL   Date Collected: 04/27/23 14:30
Project     : 380-44904                  Date Received: 04/27/23
Batch No.   : 23D295                     Date Extracted: 04/27/23 14:30
Sample ID   : MBLK1W                     Date Analyzed: 04/28/23 15:42
Lab Samp ID : DSD033WB                   Dilution Factor: 1
Lab File ID : LD28009A                   Matrix: WATER
Ext Btch ID : 23DSD033W                  % Moisture: NA
Calib. Ref.: LD28005A                    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	0.364	0.500	73	60-130
Hexacosane	0.106	0.125	85	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 : 380-44904  
BATCH NO. : 23D295  
METHOD : 3520C/8015B

MATRIX : WATER % MOISTURE:NA  
DILUTION FACTOR: 1 1  
SAMPLE ID : MBLK1W LCS1W  
LAB SAMPLE ID : DSD033WB J8D033WL  
LAB FILE ID : LD28009A LD28012A  
DATE PREPARED : 04/27/23 14:30 04/27/23 14:30  
DATE ANALYZED : 04/28/23 15:42 04/28/23 16:38  
PREP BATCH : 23DSD033W 23DSD033W  
CALIBRATION REF: LD28005A LD28005A

ACCESSION:

PARAMETERS	MBResult (mg/L)	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	QCLimit (%)
JP8	ND	2.50	2.65	106	30-160

SURROGATE PARAMETERS	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	QCLimit (%)
Bromobenzene	0.500	0.485	97	60-130
Hexacosane	0.125	0.100	80	60-130

MB: Method Blank sample LCS: Lab Control Sample

EMAX QUALITY CONTROL DATA  
MS/MSD ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL  
PROJECT : 380-44261  
BATCH NO. : 23D234  
METHOD : 3520C/8015B

MATRIX : WATER		% MOISTURE:NA
DILUTION FACTOR: 1	1	1
SAMPLE ID : 380-44261-1	380-44261-1MS	380-44261-1MSD
LAB SAMPLE ID : 23D234-01	23D234-01M	23D234-01S
LAB FILE ID : LD28019A	LD28020A	LD28021A
DATE PREPARED : 04/27/23 14:30	04/27/23 14:30	04/27/23 14:30
DATE ANALYZED : 04/28/23 18:49	04/28/23 19:07	04/28/23 19:26
PREP BATCH : 23DSD033W	23DSD033W	23DSD033W
CALIBRATION REF: LD28005A	LD28005A	LD28005A

ACCESSION:

PARAMETERS	PSResult (mg/L)	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
JP8	ND	2.53	2.03	80	2.58	2.65	103	26	30-160	30

SURROGATE PARAMETERS	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	QCLimit (%)
Bromobenzene	0.505	0.379	75	0.515	0.493	96	60-130
Hexacosane	0.126	0.117	93	0.129	0.113	88	60-130

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

May 05, 2023

Rachelle Arada  
 Eurofins Eaton Analytical  
 750 Royal Oaks Drive  
 Suite 100  
 Monrovia, CA 91016-

Project Name: RED-HILL Project # 38001111 Job # 380-44904-1  
 Physis Project ID: 1407003-400

Dear Rachelle,


Enclosed are the analytical results for the sample submitted to PHYSIS Environmental Laboratories, Inc. (PHYSIS) on 4/26/2023. 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: 1407003-400

RED-HILL Project # 38001111 Job # 380-44904-1

Total Samples: 1

PHYSIS ID	Sample ID	Description	Date	Time	Matrix	Sample Type
106258	MOANALUA WELLS	380-44904-1	4/21/2023	10:00	Samplewater	Not Specified

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

## 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.

## PHYSIS QUALIFIER CODES

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



---

## CASE NARRATIVE

### QUALIFIER NOTES

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

#### **ND**

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

# BIANALYTICALS

## REPORT

TERRA AURA  
ENVIRONMENTAL LABORATORIES, INC.

*Innovative Solutions for Nature*

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

## Base/Neutral Extractable Compounds

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
<b>Sample ID: 106258-R1</b>	<b>MOANALUA WELLS 380-44904-1</b>		<b>Matrix: Samplewater</b>				<b>Sampled:</b>	<b>21-Apr-23 10:00</b>		<b>Received:</b>	<b>26-Apr-23</b>
Disalicylidenepropanediamine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-41040	26-Apr-23	04-May-23



## Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
<b>Sample ID: 106258-R1</b>	<b>MOANALUA WELLS 380-44904-1</b>	<b>Matrix: Samplewater</b>					<b>Sampled:</b>	<b>21-Apr-23 10:00</b>		<b>Received:</b>	<b>26-Apr-23</b>
(d10-Acenaphthene)	EPA 625.1	% Recovery	81	1			Total		O-41040	26-Apr-23	04-May-23
(d10-Phenanthrene)	EPA 625.1	% Recovery	80	1			Total		O-41040	26-Apr-23	04-May-23
(d12-Chrysene)	EPA 625.1	% Recovery	62	1			Total		O-41040	26-Apr-23	04-May-23
(d12-Perylene)	EPA 625.1	% Recovery	81	1			Total		O-41040	26-Apr-23	04-May-23
(d8-Naphthalene)	EPA 625.1	% Recovery	75	1			Total		O-41040	26-Apr-23	04-May-23
1-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41040	26-Apr-23	04-May-23
1-Methylphenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41040	26-Apr-23	04-May-23
2,3,5-Trimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41040	26-Apr-23	04-May-23
2,6-Dimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41040	26-Apr-23	04-May-23
2-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41040	26-Apr-23	04-May-23
Acenaphthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41040	26-Apr-23	04-May-23
Acenaphthylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41040	26-Apr-23	04-May-23
Anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41040	26-Apr-23	04-May-23
Benz[a]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41040	26-Apr-23	04-May-23
Benzo[a]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41040	26-Apr-23	04-May-23
Benzo[b]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41040	26-Apr-23	04-May-23
Benzo[e]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41040	26-Apr-23	04-May-23
Benzo[g,h,i]perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41040	26-Apr-23	04-May-23
Benzo[k]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41040	26-Apr-23	04-May-23
Biphenyl	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41040	26-Apr-23	04-May-23
Chrysene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41040	26-Apr-23	04-May-23
D benz[a,h]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41040	26-Apr-23	04-May-23
D benzo[a,l]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41040	26-Apr-23	04-May-23
D benzothiophene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41040	26-Apr-23	04-May-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-41040	26-Apr-23	04-May-23
Fluorene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41040	26-Apr-23	04-May-23
Indeno[1,2,3-cd]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41040	26-Apr-23	04-May-23
Naphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41040	26-Apr-23	04-May-23
Perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41040	26-Apr-23	04-May-23
Phenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41040	26-Apr-23	04-May-23
Pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41040	26-Apr-23	04-May-23

# QUALITY CONTROL REPORT

TERRA ENVIRONMENTAL LABORATORIES, INC.

*Innovative Solutions for Nature*

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

## 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: 106257-B1</b>		<b>QAQC Procedural Blank</b>			<b>Matrix: BlankMatrix</b>			<b>Sampled:</b>		<b>Received:</b>			
		Method: EPA 625.1			Batch ID: O-41040			Prepared: 20-Apr-23		Analyzed: 03-May-23			
Disalicylideneprapanediamin	Total	ND	1	0.05	0.1	µg/L							
<b>Sample ID: 106257-BS1</b>		<b>QAQC Procedural Blank</b>			<b>Matrix: BlankMatrix</b>			<b>Sampled:</b>		<b>Received:</b>			
		Method: EPA 625.1			Batch ID: O-41040			Prepared: 20-Apr-23		Analyzed: 03-May-23			
Disalicylideneprapanediamin	Total	41.9	1	0.05	0.1	µg/L	50	0	84	50 - 150%	PASS		
<b>Sample ID: 106257-BS2</b>		<b>QAQC Procedural Blank</b>			<b>Matrix: BlankMatrix</b>			<b>Sampled:</b>		<b>Received:</b>			
		Method: EPA 625.1			Batch ID: O-41040			Prepared: 20-Apr-23		Analyzed: 03-May-23			
Disalicylideneprapanediamin	Total	32.9	1	0.05	0.1	µg/L	50	0	66	50 - 150%	PASS	24	30 PASS

## Polynuclear Aromatic Hydrocarbons

## QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY	PRECISION	QA CODEc	
							LEVEL	RESULT	% LIMITS	% LIMITS		
<b>Sample ID: 106257-B1</b>		<b>QAQC Procedural Blank</b>			<b>Matrix: BlankMatrix</b>			<b>Sampled:</b>		<b>Received:</b>		
		Method: EPA 625.1			Batch ID: O-41040			Prepared: 20-Apr-23		Analyzed: 03-May-23		
(d10-Acenaphthene)	Total	78	1				% Recovery	100	78	27 - 133%	PASS	
(d10-Phenanthrene)	Total	81	1				% Recovery	100	81	43 - 129%	PASS	
(d12-Chrysene)	Total	64	1				% Recovery	100	64	52 - 144%	PASS	
(d12-Perylene)	Total	81	1				% Recovery	100	81	36 - 161%	PASS	
(d8-Naphthalene)	Total	78	1				% Recovery	100	78	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 CODE
							LEVEL	RESULT	%	LIMITS	%	LIMITS	
Fluoranthene	Total	ND	1	0.001	0.005	µg/L							
Fluorene	Total	ND	1	0.001	0.005	µg/L							
Indeno[1,2,3-cd]pyrene	Total	ND	1	0.001	0.005	µg/L							
Naphthalene	Total	ND	1	0.001	0.005	µg/L							
Perylene	Total	ND	1	0.001	0.005	µg/L							
Phenanthrene	Total	ND	1	0.001	0.005	µg/L							
Pyrene	Total	ND	1	0.001	0.005	µg/L							



## Polynuclear Aromatic Hydrocarbons

## QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY	PRECISION	QA CODEc	
							LEVEL	RESULT	%	LIMITS	%	LIMITS
<b>Sample ID: 106257-BS1</b>		<b>QAQC Procedural Blank</b>			<b>Matrix: BlankMatrix</b>			<b>Sampled:</b>		<b>Received:</b>		
Method: EPA 625.1		Batch ID: O-41040			Prepared: 20-Apr-23		Analyzed: 03-May-23					
(d10-Acenaphthene)	Total	77	1			% Recovery	100	0	77	27 - 133%	PASS	
(d10-Phenanthrene)	Total	78	1			% Recovery	100	0	78	43 - 129%	PASS	
(d12-Chrysene)	Total	60	1			% Recovery	100	0	60	52 - 144%	PASS	
(d12-Perylene)	Total	78	1			% Recovery	100	0	78	36 - 161%	PASS	
(d8-Naphthalene)	Total	68	1			% Recovery	100	0	68	25 - 125%	PASS	
1-Methylnaphthalene	Total	0.364	1	0.001	0.005	µg/L	0.5	0	73	31 - 128%	PASS	
1-Methylphenanthrene	Total	0.377	1	0.001	0.005	µg/L	0.5	0	75	66 - 127%	PASS	
2,3,5-Trimethylnaphthalene	Total	0.395	1	0.001	0.005	µg/L	0.5	0	79	55 - 122%	PASS	
2,6-Dimethylnaphthalene	Total	0.379	1	0.001	0.005	µg/L	0.5	0	76	48 - 120%	PASS	
2-Methylnaphthalene	Total	0.298	1	0.001	0.005	µg/L	0.5	0	60	47 - 130%	PASS	
Acenaphthene	Total	0.414	1	0.001	0.005	µg/L	0.5	0	83	53 - 131%	PASS	
Acenaphthylene	Total	0.371	1	0.001	0.005	µg/L	0.5	0	74	43 - 140%	PASS	
Anthracene	Total	0.39	1	0.001	0.005	µg/L	0.5	0	78	58 - 135%	PASS	
Benz[a]anthracene	Total	0.282	1	0.001	0.005	µg/L	0.5	0	56	55 - 145%	PASS	
Benzo[a]pyrene	Total	0.413	1	0.001	0.005	µg/L	0.5	0	83	51 - 143%	PASS	
Benzo[b]fluoranthene	Total	0.347	1	0.001	0.005	µg/L	0.5	0	69	46 - 165%	PASS	
Benzo[e]pyrene	Total	0.365	1	0.001	0.005	µg/L	0.5	0	73	42 - 152%	PASS	
Benzo[g,h,i]perylene	Total	0.363	1	0.001	0.005	µg/L	0.5	0	73	63 - 133%	PASS	
Benzo[k]fluoranthene	Total	0.38	1	0.001	0.005	µg/L	0.5	0	76	56 - 145%	PASS	
Biphenyl	Total	0.347	1	0.001	0.005	µg/L	0.5	0	69	56 - 119%	PASS	
Chrysene	Total	0.319	1	0.001	0.005	µg/L	0.5	0	64	56 - 141%	PASS	
Dibenz[a,h]anthracene	Total	0.38	1	0.001	0.005	µg/L	0.5	0	76	55 - 150%	PASS	
Dibenzo[a,l]pyrene	Total	0.53	1	0.001	0.005	µg/L	0.5	0	106	50 - 150%	PASS	
Dibenzothiophene	Total	0.394	1	0.001	0.005	µg/L	0.5	0	79	46 - 126%	PASS	

## Polynuclear Aromatic Hydrocarbons

## QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY		PRECISION		QA CODEc
							LEVEL	RESULT	%	LIMITS	%	LIMITS	
Fluoranthene	Total	0.471	1	0.001	0.005	µg/L	0.5	0	94	60 - 146%	PASS		
Fluorene	Total	0.392	1	0.001	0.005	µg/L	0.5	0	78	58 - 131%	PASS		
Indeno[1,2,3-cd]pyrene	Total	0.384	1	0.001	0.005	µg/L	0.5	0	77	50 - 151%	PASS		
Naphthalene	Total	0.362	1	0.001	0.005	µg/L	0.5	0	72	41 - 126%	PASS		
Perylene	Total	0.408	1	0.001	0.005	µg/L	0.5	0	82	48 - 141%	PASS		
Phenanthrene	Total	0.418	1	0.001	0.005	µg/L	0.5	0	84	67 - 127%	PASS		
Pyrene	Total	0.467	1	0.001	0.005	µg/L	0.5	0	93	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: 106257-BS2</b>		<b>QAQC Procedural Blank</b>			<b>Matrix: BlankMatrix</b>			<b>Sampled:</b>			<b>Received:</b>				
Method: EPA 625.1		Batch ID: O-41040			Prepared: 20-Apr-23			Analyzed: 03-May-23							
(d10-Acenaphthene)	Total	78	1				% Recovery	100	0	78	27 - 133%	PASS	1	30	PASS
(d10-Phenanthrene)	Total	74	1				% Recovery	100	0	74	43 - 129%	PASS	5	30	PASS
(d12-Chrysene)	Total	64	1				% Recovery	100	0	64	52 - 144%	PASS	6	30	PASS
(d12-Perylene)	Total	81	1				% Recovery	100	0	81	36 - 161%	PASS	4	30	PASS
(d8-Naphthalene)	Total	73	1				% Recovery	100	0	73	25 - 125%	PASS	7	30	PASS
1-Methylnaphthalene	Total	0.372	1	0.001	0.005	µg/L		0.5	0	74	31 - 128%	PASS	1	30	PASS
1-Methylphenanthrene	Total	0.369	1	0.001	0.005	µg/L		0.5	0	74	66 - 127%	PASS	1	30	PASS
2,3,5-Trimethylnaphthalene	Total	0.424	1	0.001	0.005	µg/L		0.5	0	85	55 - 122%	PASS	7	30	PASS
2,6-Dimethylnaphthalene	Total	0.37	1	0.001	0.005	µg/L		0.5	0	74	48 - 120%	PASS	3	30	PASS
2-Methylnaphthalene	Total	0.327	1	0.001	0.005	µg/L		0.5	0	65	47 - 130%	PASS	8	30	PASS
Acenaphthene	Total	0.405	1	0.001	0.005	µg/L		0.5	0	81	53 - 131%	PASS	2	30	PASS
Acenaphthylene	Total	0.397	1	0.001	0.005	µg/L		0.5	0	79	43 - 140%	PASS	7	30	PASS
Anthracene	Total	0.399	1	0.001	0.005	µg/L		0.5	0	80	58 - 135%	PASS	3	30	PASS
Benz[a]anthracene	Total	0.321	1	0.001	0.005	µg/L		0.5	0	64	55 - 145%	PASS	13	30	PASS
Benzo[a]pyrene	Total	0.38	1	0.001	0.005	µg/L		0.5	0	76	51 - 143%	PASS	9	30	PASS
Benzo[b]fluoranthene	Total	0.334	1	0.001	0.005	µg/L		0.5	0	67	46 - 165%	PASS	3	30	PASS
Benzo[e]pyrene	Total	0.362	1	0.001	0.005	µg/L		0.5	0	72	42 - 152%	PASS	1	30	PASS
Benzo[g,h,i]perylene	Total	0.391	1	0.001	0.005	µg/L		0.5	0	78	63 - 133%	PASS	7	30	PASS
Benzo[k]fluoranthene	Total	0.386	1	0.001	0.005	µg/L		0.5	0	77	56 - 145%	PASS	1	30	PASS
Biphenyl	Total	0.366	1	0.001	0.005	µg/L		0.5	0	73	56 - 119%	PASS	6	30	PASS
Chrysene	Total	0.318	1	0.001	0.005	µg/L		0.5	0	64	56 - 141%	PASS	0	30	PASS
Dibenz[a,h]anthracene	Total	0.404	1	0.001	0.005	µg/L		0.5	0	81	55 - 150%	PASS	6	30	PASS
Dibenzo[a,l]pyrene	Total	0.464	1	0.001	0.005	µg/L		0.5	0	93	50 - 150%	PASS	13	30	PASS
Dibenzothiophene	Total	0.389	1	0.001	0.005	µg/L		0.5	0	78	46 - 126%	PASS	1	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	0.446	1	0.001	0.005	µg/L	0.5	0	89	60 - 146%	PASS	5	30	PASS
Fluorene	Total	0.417	1	0.001	0.005	µg/L	0.5	0	83	58 - 131%	PASS	6	30	PASS
Indeno[1,2,3-cd]pyrene	Total	0.371	1	0.001	0.005	µg/L	0.5	0	74	50 - 151%	PASS	4	30	PASS
Naphthalene	Total	0.377	1	0.001	0.005	µg/L	0.5	0	75	41 - 126%	PASS	4	30	PASS
Perylene	Total	0.353	1	0.001	0.005	µg/L	0.5	0	71	48 - 141%	PASS	14	30	PASS
Phenanthrene	Total	0.404	1	0.001	0.005	µg/L	0.5	0	81	67 - 127%	PASS	4	30	PASS
Pyrene	Total	0.418	1	0.001	0.005	µg/L	0.5	0	84	54 - 156%	PASS	10	30	PASS

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

**PHYSIS**

**TENTATIVELY**

**IDENTIFIED COMPOUNDS**

ENVIRONMENTAL LABORATORIES, INC.

*Innovative Solutions for Nature*

**Sample ID: 106258**

Retention Time	Area (% of total)	Concentration (ng/L)	Library/ID	Cas Number	Match Quality (%)
35.4933	4.2112	1111	Anthracene-D10-	1517-22-2	85
10.6468	3.2134	848	1,5-Heptadien-4-one, 3,3,6-trimethyl-	546-49-6	90
32.2579	0.5002	132	Benzoic acid, 2-ethylhexyl ester	5444-75-7	86

Concentration estimated using the response for Anthracene-d10

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

Sample ID: Lab Blank B1\_41040

Retention Time	Area (% of total)	Concentration (ng/L)	Library/ID	Cas Number	Match Quality (%)
35.5138	3.4910	1111	Anthracene-D10-	1719-06-8	91
32.2878	1.2852	409	Benzoic acid, 2-ethylhexyl ester	5444-75-7	93
10.6546	2.4322	774	Cyclopropane, 2-bromo-1,1,3-trimethyl-	36617-00-2	89

Concentration estimated using the response for Anthracene-d10

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



# PERFORMANCE CHAIN OF CUSTODY

TERRA ENVIRONMENTAL LABORATORIES, INC. AURA

*Innovative Solutions for Nature*

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







Project Iteration ID: 1407003-400  
 Client Name: Eurofins Eaton Analytical  
 Project Name: RED-HILL Project # 38001111 Job # 380-44904-1  
 COC Page Number: 2 of 2  
 Bottle Label Color: NA

**Sample Receipt Summary**

**Receiving Info**

1. Initials Received By: MW
2. Date Received: 4/26/2023
3. Time Received: 9:44
4. Client Name: Eurofins Eaton Analytical Pomona
5. Courier Information: (Please circle)
  - Client
  - UPS
  - Area Fast
  - DRS
  - FedEx
  - GSO/GLS
  - Ontrac
  - PAMS
  - PHYSIS Driver:
    - i. Start Time: \_\_\_\_\_
    - ii. End Time: \_\_\_\_\_
    - iii. Total Mileage: \_\_\_\_\_
    - iv. Number of Pickups: \_\_\_\_\_
6. Container Information: (Please put the # of containers or circle none)
  - Cooler
  - Styrofoam Cooler
  - Boxes
  - None
  - Carboy(s)
  - Carboy Trash Can(s)
  - Carboy Cap(s)
  - Other \_\_\_\_\_
7. What type of ice was used: (Please circle any that apply)
  - Wet Ice
  - Blue Ice
  - Dry Ice
  - Water
  - None
8. Randomly Selected Samples Temperature (°C): 4.3 Used I/R Thermometer # 1-2

**Inspection Info**

1. Initials Inspected By: R6H

**Sample Integrity Upon Receipt:**

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

Notes:







**Bottle Order Information**

Bottle Order: RUSH RED-HILL WEEKLY  
 Bottle Order #: 2757  
 Request From Client: 3/2/2023  
 Date Order Posted: 7/20/2022 11:12:54AM  
 Order Status: Ready To Process  
 Prepared By: Davis Haley  
 Deliver By Date: 4/12/2023 11:59:00PM  
 Lab Project Number: 38001111  
 PWSID:

**Order Completion Information**

Creator: Michelle Do  
 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		
5	3	15	Plastic 250ml - Trizma	Trizma	537.1_DW_PREC - 537.1 Full List	Water	Normal		
5	3	15	Plastic 250ml - Ammonium Acetate	Ammonium Acetate	533 - All Analytes	Water	Normal		
5	1	5	Plastic 250ml - Reagent Water	None		Water	Field Blank		
5	1	5	Plastic 250ml - Ammonium Acetate	Ammonium Acetate		Water	Field Blank		
5	1	5	Plastic 250ml - Reagent Water	None		Water	Field Blank		
5	1	5	Plastic 250ml - Trizma	Trizma		Water	Field Blank		

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: 380-44904-1

**Login Number: 44904**  
**List Number: 1**  
**Creator: Elyas, Matthew**

**List Source: Eurofins Eaton Analytical Pomona**

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	