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# ANALYTICAL REPORT

## PREPARED FOR

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## JOB DESCRIPTION

RED-HILL

## JOB NUMBER

380-55362-1

# Eurofins Eaton Analytical Pomona

## Job Notes

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The test results in this report relate only to the samples as received by the laboratory and 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



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# Definitions/Glossary

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

Job ID: 380-55362-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
*1	LCS/LCSD RPD exceeds control limits.
^3-	Reporting Limit Check Standard is outside acceptance limits, low biased.
^3+	Reporting Limit Check Standard is outside acceptance limits, high biased
B	Analyte was found in the associated method blank.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### GC/MS 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.

### GC/MS Semi VOA

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

### GC/MS Semi VOA TICs

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

### GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### HPLC/IC

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
HF	Parameter with a holding time of 15 minutes. Test performed by laboratory at client's request. Sample was analyzed outside of hold time.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### Subcontract

Qualifier	Qualifier Description
U	This analyte was not detected.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)

## Definitions/Glossary

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

Job ID: 380-55362-1

### Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
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: 380-55362-1

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## Job ID: 380-55362-1

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### Laboratory: Eurofins Eaton Analytical Pomona

#### Narrative

#### Job Narrative 380-55362-1

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method. Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

#### Receipt

The samples were received on 7/19/2023 10:00 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 2.7°C, 4.4°C and 4.9°C

#### Subcontract Work

Methods 8015 Ethanol, 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. The subcontract report is appended in its entirety.

Method 625 Acid/Base/PAH + TICs: This method was subcontracted to Physis Environmental Laboratories. The subcontract laboratory certification is different from that of the facility issuing the final report. The subcontract report is appended in its entirety.

#### GC/MS VOA

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

#### GC/MS Semi VOA

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

#### GC Semi VOA

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

#### HPLC/IC

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

#### Metals

Method 245.1: A Chain-of-Custody (COC) was not received with these samples: HALAWA WELLS UNITS 1 & 2 (380-55362-1).

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

#### General Chemistry

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

# Detection Summary

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

Job ID: 380-55362-1

**Client Sample ID: HALAWA WELLS UNITS 1 & 2**

**Lab Sample ID: 380-55362-1**

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Dieldrin	0.045		0.010	ug/L	1		505	Total/NA
Chlordane (n.o.s.)	0.25		0.10	ug/L	1		505	Total/NA
Heptachlor epoxide	0.015		0.010	ug/L	1		505	Total/NA
Bromide	700		25	ug/L	5		300.0	Total/NA
Chloride	200		2.5	mg/L	5		300.0	Total/NA
Nitrate as N	1.7		0.25	mg/L	5		300.0	Total/NA
Sulfate	44		1.3	mg/L	5		300.0	Total/NA
Calcium	37		1.0	mg/L	1		200.7 Rev 4.4	Total/NA
Magnesium	33		0.10	mg/L	1		200.7 Rev 4.4	Total/NA
Potassium	3.8		1.0	mg/L	1		200.7 Rev 4.4	Total/NA
Sodium	72		1.0	mg/L	1		200.7 Rev 4.4	Total/NA
Chromium	2.5		0.90	ug/L	1		200.8	Total/NA
Copper	1.6		1.0	ug/L	1		200.8	Total/NA
Selenium	2.2		2.0	ug/L	1		200.8	Total/NA
Zinc	18		5.0	ug/L	1		200.8	Total/NA
Alkalinity	66		2.0	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	66		2.0	mg/L	1		SM 2320B	Total/NA
Specific Conductance	860		2.0	umhos/cm	1		SM 2510B	Total/NA
Total Dissolved Solids	490		20	mg/L	1		SM 2540C	Total/NA
Fluoride	0.052		0.050	mg/L	1		SM 4500 F C	Total/NA
pH	7.6	HF		SU	1		SM 4500 H+ B	Total/NA

**Client Sample ID: TB: HALAWA WELLS UNITS 1 & 2**

**Lab Sample ID: 380-55362-2**

No Detections.

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: 380-55362-1

**Client Sample ID: HALAWA WELLS UNITS 1 & 2**

**Lab Sample ID: 380-55362-1**

Date Collected: 07/18/23 09:00

Matrix: Water

Date Received: 07/19/23 10:00

### Method: EPA-DW 524.2 - Total Trihalomethanes

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Trihalomethanes, Total	<0.50		0.50	ug/L			08/01/23 13:05	1

### Method: EPA-DW 524.2 - Volatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Tertiary Butyl Alcohol (TBA)	<2.0		2.0	ug/L			07/20/23 20:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	100		70 - 130		07/20/23 20:57	1
4-Bromofluorobenzene (Surr)	93		70 - 130		07/20/23 20:57	1
1,2-Dichloroethane-d4 (Surr)	109		70 - 130		07/20/23 20:57	1

### Method: EPA-DW 524.2 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L			07/28/23 01:19	1
1,1,1-Trichloroethane	<0.50		0.50	ug/L			07/28/23 01:19	1
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L			07/28/23 01:19	1
1,1,2-Trichloroethane	<0.50		0.50	ug/L			07/28/23 01:19	1
1,1-Dichloroethylene	<0.50		0.50	ug/L			07/28/23 01:19	1
1,1-Dichloroethane	<0.50		0.50	ug/L			07/28/23 01:19	1
1,1-Dichloropropene	<0.50		0.50	ug/L			07/28/23 01:19	1
1,2,3-Trichlorobenzene	<0.50		0.50	ug/L			07/28/23 01:19	1
1,2,3-Trichloropropane	<0.50		0.50	ug/L			07/28/23 01:19	1
1,2,4-Trichlorobenzene	<0.50		0.50	ug/L			07/28/23 01:19	1
1,2,4-Trimethy benzene	<0.50		0.50	ug/L			07/28/23 01:19	1
1,2-Dichloroethane	<0.50		0.50	ug/L			07/28/23 01:19	1
1,2-Dichloropropane	<0.50		0.50	ug/L			07/28/23 01:19	1
1,3,5-Trimethy benzene	<0.50		0.50	ug/L			07/28/23 01:19	1
1,3-Dichloropropane	<0.50		0.50	ug/L			07/28/23 01:19	1
1,3-Dichloropropene, Total	<0.50	^3+	0.50	ug/L			07/28/23 01:19	1
2,2-Dichloropropane	<0.50		0.50	ug/L			07/28/23 01:19	1
2-Butanone (MEK)	<5.0		5.0	ug/L			07/28/23 01:19	1
4-Methyl-2-pentanone (MIBK)	<5.0		5.0	ug/L			07/28/23 01:19	1
Acetone	<500		500	ug/L			07/28/23 01:19	1
Benzene	<0.50		0.50	ug/L			07/28/23 01:19	1
Bromobenzene	<0.50		0.50	ug/L			07/28/23 01:19	1
Bromochloromethane	<0.50		0.50	ug/L			07/28/23 01:19	1
Bromodichloromethane	<0.50		0.50	ug/L			07/28/23 01:19	1
Bromoethane	<0.50		0.50	ug/L			07/28/23 01:19	1
Bromoform	<0.50		0.50	ug/L			07/31/23 20:56	1
Bromomethane (Methyl Bromide)	<0.50		0.50	ug/L			07/28/23 01:19	1
Carbon disulfide	<0.50		0.50	ug/L			07/28/23 01:19	1
Carbon tetrachloride	<0.50		0.50	ug/L			07/28/23 01:19	1
Chlorobenzene	<0.50		0.50	ug/L			07/28/23 01:19	1
Chlorodibromomethane	<0.50		0.50	ug/L			07/31/23 20:56	1
Chloroethane	<0.50		0.50	ug/L			07/28/23 01:19	1
Chloroform (Trichloromethane)	<0.50		0.50	ug/L			07/28/23 01:19	1
Chloromethane (methyl chloride)	<0.50		0.50	ug/L			07/28/23 01:19	1
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L			07/28/23 01:19	1
cis-1,3-Dichloropropene	<0.50		0.50	ug/L			07/31/23 20:56	1
Dibromomethane	<0.50		0.50	ug/L			07/28/23 01:19	1



# Client Sample Results

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

Job ID: 380-55362-1

**Client Sample ID: HALAWA WELLS UNITS 1 & 2**

**Lab Sample ID: 380-55362-1**

**Date Collected: 07/18/23 09:00**

**Matrix: Water**

**Date Received: 07/19/23 10:00**

**Method: EPA-DW 524.2 - Volatile Organic Compounds (GC/MS) (Continued)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorodifluoromethane	<0.50	*+	0.50	ug/L			07/28/23 01:19	1
Dichloromethane	<0.50		0.50	ug/L			07/28/23 01:19	1
Diisopropyl ether	<3.0		3.0	ug/L			07/28/23 01:19	1
Ethylbenzene	<0.50		0.50	ug/L			07/28/23 01:19	1
Hexachlorobutadiene	<0.50		0.50	ug/L			07/28/23 01:19	1
Isopropyl benzene	<0.50		0.50	ug/L			07/28/23 01:19	1
m,p-Xylenes	<0.50		0.50	ug/L			07/28/23 01:19	1
m-Dichlorobenzene (1,3-DCB)	<0.50		0.50	ug/L			07/28/23 01:19	1
Methyl-tert-butyl Ether (MTBE)	<0.50		0.50	ug/L			07/28/23 01:19	1
Naphthalene	<0.50		0.50	ug/L			07/28/23 01:19	1
n-Butylbenzene	<0.50		0.50	ug/L			07/28/23 01:19	1
N-Propylbenzene	<0.50		0.50	ug/L			07/28/23 01:19	1
o-Chlorotoluene	<0.50		0.50	ug/L			07/28/23 01:19	1
o-Dichlorobenzene (1,2-DCB)	<0.50		0.50	ug/L			07/28/23 01:19	1
o-Xylene	<0.50		0.50	ug/L			07/28/23 01:19	1
p-Chlorotoluene	<0.50		0.50	ug/L			07/28/23 01:19	1
p-Dichlorobenzene (1,4-DCB)	<0.50		0.50	ug/L			07/28/23 01:19	1
p-Isopropyltoluene	<0.50		0.50	ug/L			07/28/23 01:19	1
sec-Butylbenzene	<0.50		0.50	ug/L			07/28/23 01:19	1
Styrene	<0.50		0.50	ug/L			07/28/23 01:19	1
Tert-amyl methyl ether	<3.0		3.0	ug/L			07/28/23 01:19	1
Tert-butyl ethyl ether	<3.0		3.0	ug/L			07/28/23 01:19	1
tert-Butylbenzene	<0.50		0.50	ug/L			07/28/23 01:19	1
Tetrachloroethene (PCE)	<0.50		0.50	ug/L			07/28/23 01:19	1
Toluene	<0.50		0.50	ug/L			07/28/23 01:19	1
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L			07/28/23 01:19	1
trans-1,3-Dichloropropene	<0.50		0.50	ug/L			07/28/23 01:19	1
Trichloroethylene (TCE)	<0.50		0.50	ug/L			07/28/23 01:19	1
Trichlorofluoromethane (Freon 11)	<0.50		0.50	ug/L			07/28/23 01:19	1
Trichlorotrifluoroethane	<0.50		0.50	ug/L			07/31/23 20:56	1
Vinyl Chloride (VC)	<0.30		0.30	ug/L			07/31/23 20:56	1
Xylenes, Total	<0.50		0.50	ug/L			07/28/23 01:19	1

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Cyclopentane	0.94	T J N	ug/L		1.88	287-92-3		07/31/23 20:56	1
Furfural	23	T J N	ug/L		10.01	98-01-1		07/28/23 01:19	1
Heptane, 2,2,4,6,6-pentamethyl-	0.73	T J N	ug/L		11.32	13475-82-6		07/28/23 01:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		70 - 130		07/28/23 01:19	1
1,2-Dichloroethane-d4 (Surr)	103		70 - 130		07/31/23 20:56	1
4-Bromofluorobenzene (Surr)	102		70 - 130		07/28/23 01:19	1
4-Bromofluorobenzene (Surr)	100		70 - 130		07/31/23 20:56	1
Toluene-d8 (Surr)	91		70 - 130		07/28/23 01:19	1
Toluene-d8 (Surr)	93		70 - 130		07/31/23 20:56	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	<0.098		0.098	ug/L		07/21/23 14:06	07/23/23 11:49	1
2,4'-DDE	<0.098		0.098	ug/L		07/21/23 14:06	07/23/23 11:49	1

Eurofins Eaton Analytical Pomona

# Client Sample Results

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

Job ID: 380-55362-1

**Client Sample ID: HALAWA WELLS UNITS 1 & 2**

**Lab Sample ID: 380-55362-1**

Date Collected: 07/18/23 09:00

Matrix: Water

Date Received: 07/19/23 10:00

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDT	<0.098		0.098	ug/L		07/21/23 14:06	07/23/23 11:49	1
2,4-Dinitrotoluene	<0.098		0.098	ug/L		07/21/23 14:06	07/23/23 11:49	1
2,6-Dinitrotoluene	<0.098		0.098	ug/L		07/21/23 14:06	07/23/23 11:49	1
4,4'-DDD	<0.098		0.098	ug/L		07/21/23 14:06	07/23/23 11:49	1
4,4'-DDE	<0.098		0.098	ug/L		07/21/23 14:06	07/23/23 11:49	1
4,4'-DDT	<0.098		0.098	ug/L		07/21/23 14:06	07/23/23 11:49	1
Acenaphthene	<0.098		0.098	ug/L		07/21/23 14:06	07/23/23 11:49	1
Acenaphthylene	<0.098		0.098	ug/L		07/21/23 14:06	07/23/23 11:49	1
Acetochlor	<0.098		0.098	ug/L		07/21/23 14:06	07/23/23 11:49	1
Alachlor	<0.049		0.049	ug/L		07/21/23 14:06	07/23/23 11:49	1
alpha-BHC	<0.098		0.098	ug/L		07/21/23 14:06	07/23/23 11:49	1
alpha-Chlordane	<0.049		0.049	ug/L		07/21/23 14:06	07/23/23 11:49	1
Anthracene	<0.020		0.020	ug/L		07/21/23 14:06	07/23/23 11:49	1
Atrazine	<0.049		0.049	ug/L		07/21/23 14:06	07/23/23 11:49	1
Benz(a)anthracene	<0.049		0.049	ug/L		07/21/23 14:06	07/23/23 11:49	1
Benzo[a]pyrene	<0.020		0.020	ug/L		07/21/23 14:06	07/23/23 11:49	1
Benzo[b]fluoranthene	<0.020		0.020	ug/L		07/21/23 14:06	07/23/23 11:49	1
Benzo[g,h,i]perylene	<0.049		0.049	ug/L		07/21/23 14:06	07/23/23 11:49	1
Benzo[k]fluoranthene	<0.020		0.020	ug/L		07/21/23 14:06	07/23/23 11:49	1
beta-BHC	<0.098		0.098	ug/L		07/21/23 14:06	07/23/23 11:49	1
Bis(2-ethylhexyl) phthalate	<0.59		0.59	ug/L		07/21/23 14:06	07/23/23 11:49	1
Bromacil	<0.098		0.098	ug/L		07/21/23 14:06	07/23/23 11:49	1
Butachlor	<0.049	*+	0.049	ug/L		07/21/23 14:06	07/23/23 11:49	1
Butylbenzylphthalate	<0.49	^3+	0.49	ug/L		07/21/23 14:06	07/23/23 11:49	1
Chlorobenzilate	<0.098	^3+	0.098	ug/L		07/21/23 14:06	07/23/23 11:49	1
Chloroneb	<0.098		0.098	ug/L		07/21/23 14:06	07/23/23 11:49	1
Chlorothalonil (Draconil, Bravo)	<0.098		0.098	ug/L		07/21/23 14:06	07/23/23 11:49	1
Chlorpyrifos	<0.049		0.049	ug/L		07/21/23 14:06	07/23/23 11:49	1
Chrysene	<0.020		0.020	ug/L		07/21/23 14:06	07/23/23 11:49	1
delta-BHC	<0.098		0.098	ug/L		07/21/23 14:06	07/23/23 11:49	1
Di(2-ethylhexyl)adipate	<0.59		0.59	ug/L		07/21/23 14:06	07/23/23 11:49	1
Dibenz(a,h)anthracene	<0.049		0.049	ug/L		07/21/23 14:06	07/23/23 11:49	1
Diclorvos (DDVP)	<0.049	^3+	0.049	ug/L		07/21/23 14:06	07/23/23 11:49	1
Dieldrin	<0.20		0.20	ug/L		07/21/23 14:06	07/23/23 11:49	1
Diethylphthalate	<0.49		0.49	ug/L		07/21/23 14:06	07/23/23 11:49	1
Dimethylphthalate	<0.49		0.49	ug/L		07/21/23 14:06	07/23/23 11:49	1
Di-n-butyl phthalate	<0.98		0.98	ug/L		07/21/23 14:06	07/23/23 11:49	1
Di-n-octyl phthalate	<0.098		0.098	ug/L		07/21/23 14:06	07/23/23 11:49	1
Endosulfan I (Alpha)	<0.098		0.098	ug/L		07/21/23 14:06	07/23/23 11:49	1
Endosulfan II (Beta)	<0.098	^3+	0.098	ug/L		07/21/23 14:06	07/23/23 11:49	1
Endosulfan sulfate	<0.098		0.098	ug/L		07/21/23 14:06	07/23/23 11:49	1
Endrin	<0.098		0.098	ug/L		07/21/23 14:06	07/23/23 11:49	1
Endrin aldehyde	<0.098		0.098	ug/L		07/21/23 14:06	07/23/23 11:49	1
EPTC	<0.098		0.098	ug/L		07/21/23 14:06	07/23/23 11:49	1
Fluoranthene	<0.098		0.098	ug/L		07/21/23 14:06	07/23/23 11:49	1
Fluorene	<0.049		0.049	ug/L		07/21/23 14:06	07/23/23 11:49	1
gamma-BHC (Lindane)	<0.039		0.039	ug/L		07/21/23 14:06	07/23/23 11:49	1
gamma-Chlordane	<0.049		0.049	ug/L		07/21/23 14:06	07/23/23 11:49	1
Heptachlor	<0.039		0.039	ug/L		07/21/23 14:06	07/23/23 11:49	1

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# Client Sample Results

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

Job ID: 380-55362-1

**Client Sample ID: HALAWA WELLS UNITS 1 & 2**

**Lab Sample ID: 380-55362-1**

Date Collected: 07/18/23 09:00

Matrix: Water

Date Received: 07/19/23 10:00

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Heptachlor epoxide (isomer B)	<0.049		0.049	ug/L		07/21/23 14:06	07/23/23 11:49	1
Hexachlorobenzene	<0.049		0.049	ug/L		07/21/23 14:06	07/23/23 11:49	1
Hexachlorocyclopentadiene	<0.049		0.049	ug/L		07/21/23 14:06	07/23/23 11:49	1
Indeno[1,2,3-cd]pyrene	<0.049		0.049	ug/L		07/21/23 14:06	07/23/23 11:49	1
Isophorone	<0.49		0.49	ug/L		07/21/23 14:06	07/23/23 11:49	1
Malathion	<0.098		0.098	ug/L		07/21/23 14:06	07/23/23 11:49	1
Methoxychlor	<0.098		0.098	ug/L		07/21/23 14:06	07/23/23 11:49	1
Metolachlor	<0.049		0.049	ug/L		07/21/23 14:06	07/23/23 11:49	1
Molinate	<0.098		0.098	ug/L		07/21/23 14:06	07/23/23 11:49	1
Naphthalene	<0.29		0.29	ug/L		07/21/23 14:06	07/23/23 11:49	1
Parathion	<0.098		0.098	ug/L		07/21/23 14:06	07/23/23 11:49	1
Pendimethalin (Penoxaline)	<0.098		0.098	ug/L		07/21/23 14:06	07/23/23 11:49	1
Phenanthrene	<0.039		0.039	ug/L		07/21/23 14:06	07/23/23 11:49	1
Propachlor	<0.049		0.049	ug/L		07/21/23 14:06	07/23/23 11:49	1
Pyrene	<0.049		0.049	ug/L		07/21/23 14:06	07/23/23 11:49	1
Simazine	<0.049		0.049	ug/L		07/21/23 14:06	07/23/23 11:49	1
Terbacil	<0.098		0.098	ug/L		07/21/23 14:06	07/23/23 11:49	1
Terbutylazine	<0.098		0.098	ug/L		07/21/23 14:06	07/23/23 11:49	1
Thiobencarb	<0.20		0.20	ug/L		07/21/23 14:06	07/23/23 11:49	1
Total Permethrin (mixed isomers)	<0.20		0.20	ug/L		07/21/23 14:06	07/23/23 11:49	1
trans-Nonachlor	<0.049		0.049	ug/L		07/21/23 14:06	07/23/23 11:49	1
Trifluralin	<0.098		0.098	ug/L		07/21/23 14:06	07/23/23 11:49	1
1-Methylnaphthalene	<0.098		0.098	ug/L		07/21/23 14:06	07/23/23 11:49	1
2-Methylnaphthalene	<0.098		0.098	ug/L		07/21/23 14:06	07/23/23 11:49	1

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Tentatively Identified Compound	None		ug/L			N/A	07/21/23 14:06	07/23/23 11:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	103		70 - 130	07/21/23 14:06	07/23/23 11:49	1
Perylene-d12	90		70 - 130	07/21/23 14:06	07/23/23 11:49	1
Triphenylphosphate	119		70 - 130	07/21/23 14:06	07/23/23 11:49	1

**Method: EPA-DW2 504.1 - EDB, DBCP and 1,2,3-TCP (GC)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3-Trichloropropane	<0.020		0.020	ug/L		07/25/23 13:05	07/25/23 21:36	1
1,2-D bromo-3-Chloropropane	<0.010		0.010	ug/L		07/25/23 13:05	07/25/23 21:36	1
1,2-D bromoethane	<0.010		0.010	ug/L		07/25/23 13:05	07/25/23 21:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane (Surr)	110		60 - 140	07/25/23 13:05	07/25/23 21:36	1

**Method: EPA 505 - Organochlorine Pesticides/PCBs (GC)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	<0.010		0.010	ug/L		07/21/23 13:48	07/21/23 20:18	1
<b>Dieldrin</b>	<b>0.045</b>		0.010	ug/L		07/21/23 13:48	07/21/23 20:18	1
Toxaphene	<0.50		0.50	ug/L		07/21/23 13:48	07/21/23 20:18	1
Alachlor	<0.10		0.10	ug/L		07/21/23 13:48	07/21/23 20:18	1
<b>Chlordane (n.o.s.)</b>	<b>0.25</b>		0.10	ug/L		07/21/23 13:48	07/21/23 20:18	1
Endrin	<0.010		0.010	ug/L		07/21/23 13:48	07/21/23 20:18	1
Heptachlor	<0.010		0.010	ug/L		07/21/23 13:48	07/21/23 20:18	1

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# Client Sample Results

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

Job ID: 380-55362-1

**Client Sample ID: HALAWA WELLS UNITS 1 & 2**

**Lab Sample ID: 380-55362-1**

Date Collected: 07/18/23 09:00

Matrix: Water

Date Received: 07/19/23 10:00

## Method: EPA 505 - Organochlorine Pesticides/PCBs (GC) (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Heptachlor epoxide</b>	<b>0.015</b>		0.010	ug/L		07/21/23 13:48	07/21/23 20:18	1
gamma-BHC (Lindane)	<0.010		0.010	ug/L		07/21/23 13:48	07/21/23 20:18	1
Methoxychlor	<0.050		0.050	ug/L		07/21/23 13:48	07/21/23 20:18	1
PCB-1016	<0.070		0.070	ug/L		07/21/23 13:48	07/21/23 20:18	1
PCB-1221	<0.10		0.10	ug/L		07/21/23 13:48	07/21/23 20:18	1
PCB-1232	<0.10		0.10	ug/L		07/21/23 13:48	07/21/23 20:18	1
PCB-1242	<0.10		0.10	ug/L		07/21/23 13:48	07/21/23 20:18	1
PCB-1248	<0.10		0.10	ug/L		07/21/23 13:48	07/21/23 20:18	1
PCB-1254	<0.10		0.10	ug/L		07/21/23 13:48	07/21/23 20:18	1
PCB-1260	<0.070		0.070	ug/L		07/21/23 13:48	07/21/23 20:18	1
Polychlorinated biphenyls, Total	<0.10		0.10	ug/L		07/21/23 13:48	07/21/23 20:18	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>			<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Tetrachloro-m-xylene	102		70 - 130			07/21/23 13:48	07/21/23 20:18	1

## Method: EPA 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Bromide</b>	<b>700</b>		25	ug/L			08/01/23 02:19	5
<b>Chloride</b>	<b>200</b>		2.5	mg/L			07/19/23 19:27	5
<b>Nitrate as N</b>	<b>1.7</b>		0.25	mg/L			07/19/23 19:27	5
Nitrite as N	<0.25		0.25	mg/L			07/19/23 19:27	5
<b>Sulfate</b>	<b>44</b>		1.3	mg/L			07/19/23 19:27	5

## Method: EPA 200.7 Rev 4.4 - Metals (ICP)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Calcium</b>	<b>37</b>		1.0	mg/L			07/20/23 15:02	1
<b>Magnesium</b>	<b>33</b>		0.10	mg/L			07/20/23 15:02	1
<b>Potassium</b>	<b>3.8</b>		1.0	mg/L			07/20/23 15:02	1
<b>Sodium</b>	<b>72</b>		1.0	mg/L			07/20/23 15:02	1

## Method: EPA 200.8 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.0		1.0	ug/L			08/10/23 16:34	1
Arsenic	<1.0		1.0	ug/L			08/10/23 16:34	1
Beryllium	<0.30		0.30	ug/L			08/10/23 16:34	1
Cadmium	<0.50		0.50	ug/L			08/10/23 16:34	1
<b>Chromium</b>	<b>2.5</b>		0.90	ug/L			08/10/23 16:34	1
<b>Copper</b>	<b>1.6</b>		1.0	ug/L			08/10/23 16:34	1
Lead	<0.50		0.50	ug/L			08/10/23 16:34	1
Nickel	<1.0		1.0	ug/L			08/10/23 16:34	1
<b>Selenium</b>	<b>2.2</b>		2.0	ug/L			08/10/23 16:34	1
Silver	<0.50		0.50	ug/L			08/10/23 16:34	1
Thallium	<0.30		0.30	ug/L			08/10/23 16:34	1
<b>Zinc</b>	<b>18</b>		5.0	ug/L			08/10/23 16:34	1

## Method: EPA 245.1 - Mercury (CVAA)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.10		0.10	ug/L		07/27/23 12:00	07/27/23 21:01	1

# Client Sample Results

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

Job ID: 380-55362-1

**Client Sample ID: HALAWA WELLS UNITS 1 & 2**

**Lab Sample ID: 380-55362-1**

Date Collected: 07/18/23 09:00

Matrix: Water

Date Received: 07/19/23 10:00

## General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity (SM 2320B)	66		2.0	mg/L			07/20/23 16:35	1
Bicarbonate Alkalinity as CaCO3 (SM 2320B)	66		2.0	mg/L			07/20/23 16:35	1
Carbonate Alkalinity as CaCO3 (SM 2320B)	<2.0		2.0	mg/L			07/20/23 16:35	1
Specific Conductance (SM 2510B)	860		2.0	umhos/cm			07/20/23 16:35	1
Total Dissolved Solids (SM 2540C)	490		20	mg/L			07/24/23 22:22	1
Fluoride (SM 4500 F C)	0.052		0.050	mg/L			07/24/23 19:36	1
pH (SM 4500 H+ B)	7.6	HF		SU			07/20/23 16:35	1
Sulfide (SM 4500 S2 D)	<0.050		0.050	mg/L			07/20/23 14:20	1

## Method: 625 Acid/Base/PAH + 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		07/21/23 00:00	09/01/23 12:54	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 12:54	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 12:54	1
2,4,5-Trichlorophenol	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 12:54	1
2,4,6-Trichlorophenol	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 12:54	1
2,4-Dichlorophenol	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 12:54	1
2,4-Dinitrophenol	ND		0.2	0.1	µg/L		07/21/23 00:00	09/01/23 12:54	1
2,6-Dichlorophenol	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 12:54	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 12:54	1
2,6-Di-tert-butyl-4-methylphenol	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 12:54	1
2,6-Di-tert-butylphenol	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 12:54	1
2-Chloronaphthalene	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 12:54	1
2-Chlorophenol	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 12:54	1
2-Methyl-4,6-dinitrophenol	ND		0.2	0.1	µg/L		07/21/23 00:00	09/01/23 12:54	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 12:54	1
2-Methylphenol	ND		0.2	0.1	µg/L		07/21/23 00:00	09/01/23 12:54	1
2-Nitroaniline	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 12:54	1
2-Nitrophenol	ND		0.2	0.1	µg/L		07/21/23 00:00	09/01/23 12:54	1
3+4-Methylphenol	ND		0.2	0.1	µg/L		07/21/23 00:00	09/01/23 12:54	1
3-Nitroaniline	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 12:54	1
4-Bromophenylphenyl ether	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 12:54	1
4-Chloro-3-methylphenol	ND		0.2	0.1	µg/L		07/21/23 00:00	09/01/23 12:54	1
4-Chloroaniline	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 12:54	1
4-Chlorophenylphenyl ether	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 12:54	1
4-Nitroaniline	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 12:54	1
4-Nitrophenol	ND		0.2	0.1	µg/L		07/21/23 00:00	09/01/23 12:54	1
6-tert-butyl-2,4-dimethylphenol	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 12:54	1
Acenaphthene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 12:54	1
Acenaphthylene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 12:54	1
Aniline	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 12:54	1
Anthracene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 12:54	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 12:54	1
Benzidine	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 12:54	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 12:54	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 12:54	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 12:54	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 12:54	1

Eurofins Eaton Analytical Pomona

# Client Sample Results

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

Job ID: 380-55362-1

**Client Sample ID: HALAWA WELLS UNITS 1 & 2**

**Lab Sample ID: 380-55362-1**

Date Collected: 07/18/23 09:00

Matrix: Water

Date Received: 07/19/23 10:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 12:54	1
Benzoic Acid	ND		0.2	0.1	µg/L		07/21/23 00:00	09/01/23 12:54	1
Benzyl Alcohol	ND		0.2	0.1	µg/L		07/21/23 00:00	09/01/23 12:54	1
Biphenyl	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 12:54	1
Bis(2-Chloroethoxy) methane	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 12:54	1
Bis(2-Chloroethyl) ether	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 12:54	1
Bis(2-Chloroisopropyl) ether	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 12:54	1
Chrysene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 12:54	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 12:54	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 12:54	1
Dibenzofuran	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 12:54	1
Dibenzothiophene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 12:54	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 12:54	1
Fluoranthene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 12:54	1
Fluorene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 12:54	1
Hexachloroethane	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 12:54	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 12:54	1
Naphthalene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 12:54	1
Nitrobenzene	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 12:54	1
N-Nitrosodi-n-propylamine	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 12:54	1
N-Nitrosodiphenylamine	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 12:54	1
Pentachlorophenol	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 12:54	1
Perylene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 12:54	1
Phenanthrene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 12:54	1
Phenol	ND		0.2	0.1	µg/L		07/21/23 00:00	09/01/23 12:54	1
p-tert-Butylphenol	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 12:54	1
Pyrene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 12:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
(2,4,6-Tribromophenol)	139		31 - 143	07/21/23 00:00	09/01/23 12:54	1
(d10-Acenaphthene)	97		27 - 133	07/21/23 00:00	09/01/23 12:54	1
(d10-Phenanthrene)	96		43 - 129	07/21/23 00:00	09/01/23 12:54	1
(d12-Chrysene)	92		52 - 144	07/21/23 00:00	09/01/23 12:54	1
(d12-Perylene)	98		36 - 161	07/21/23 00:00	09/01/23 12:54	1
(d5-Phenol)	85		0 - 85	07/21/23 00:00	09/01/23 12:54	1
(d8-Naphthalene)	87		25 - 125	07/21/23 00:00	09/01/23 12:54	1

**Method: 8015 Ethanol - SW846 8015B Gasoline Range Organics**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
ETHANOL	ND	U	2000		ug/L			07/21/23 17:39	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GASOLINE	ND	U	0.02		mg/L			07/20/23 22:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
BROMOFLUOROBENZENE	76		60 - 140		07/20/23 22:02	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	0.026		mg/L			07/28/23 22:18	1

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# Client Sample Results

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

Job ID: 380-55362-1

**Client Sample ID: HALAWA WELLS UNITS 1 & 2**

**Lab Sample ID: 380-55362-1**

Date Collected: 07/18/23 09:00

Matrix: Water

Date Received: 07/19/23 10:00

**Method: 8015 LL DRO/MRO/JP5/JP8 - 8015 - TPH DRO/ORO (Continued)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
JP5	ND	U	0.052		mg/L			07/28/23 22:18	1
JP8	ND	U	0.052		mg/L			07/28/23 22:18	1
MOTOR OIL	ND	U	0.052		mg/L			07/28/23 22:18	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
BROMOBENZENE	63		60 - 130					07/28/23 22:18	1
HEXACOSANE	88		60 - 130					07/28/23 22:18	1

**Client Sample ID: TB: HALAWA WELLS UNITS 1 & 2**

**Lab Sample ID: 380-55362-2**

Date Collected: 07/18/23 09:00

Matrix: Water

Date Received: 07/19/23 10:00

**Method: EPA-DW 524.2 - Total Trihalomethanes**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Trihalomethanes, Total	<0.50		0.50	ug/L			08/01/23 13:05	1

**Method: EPA-DW 524.2 - Volatile Organic Compounds (GC/MS SIM)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Tertiary Butyl Alcohol (TBA)	<2.0		2.0	ug/L			07/20/23 21:21	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	100		70 - 130				07/20/23 21:21	1
4-Bromofluorobenzene (Surr)	83		70 - 130				07/20/23 21:21	1
1,2-Dichloroethane-d4 (Surr)	114		70 - 130				07/20/23 21:21	1

**Method: EPA-DW 524.2 - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L			07/28/23 01:41	1
1,1,1-Trichloroethane	<0.50		0.50	ug/L			07/28/23 01:41	1
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L			07/28/23 01:41	1
1,1,2-Trichloroethane	<0.50		0.50	ug/L			07/28/23 01:41	1
1,1-Dichloroethane	<0.50		0.50	ug/L			07/28/23 01:41	1
1,1-Dichlorethylene	<0.50		0.50	ug/L			07/28/23 01:41	1
1,1-Dichloropropene	<0.50		0.50	ug/L			07/28/23 01:41	1
1,2,3-Trichlorobenzene	<0.50		0.50	ug/L			07/28/23 01:41	1
1,2,3-Trichloropropane	<0.50		0.50	ug/L			07/28/23 01:41	1
1,2,4-Trichlorobenzene	<0.50		0.50	ug/L			07/28/23 01:41	1
1,2,4-Trimethy benzene	<0.50		0.50	ug/L			07/28/23 01:41	1
1,2-Dichloroethane	<0.50		0.50	ug/L			07/28/23 01:41	1
1,2-Dichloropropane	<0.50		0.50	ug/L			07/28/23 01:41	1
1,3,5-Trimethy benzene	<0.50		0.50	ug/L			07/28/23 01:41	1
1,3-Dichloropropane	<0.50		0.50	ug/L			07/28/23 01:41	1
2,2-Dichloropropane	<0.50		0.50	ug/L			07/28/23 01:41	1
2-Butanone (MEK)	<5.0		5.0	ug/L			07/28/23 01:41	1
4-Methyl-2-pentanone (MIBK)	<5.0		5.0	ug/L			07/28/23 01:41	1
Acetone	<500		500	ug/L			07/28/23 01:41	1
Benzene	<0.50		0.50	ug/L			07/28/23 01:41	1
Bromobenzene	<0.50		0.50	ug/L			07/28/23 01:41	1
Bromochloromethane	<0.50		0.50	ug/L			07/28/23 01:41	1
Bromodichloromethane	<0.50		0.50	ug/L			07/28/23 01:41	1
Bromoform	<0.50		0.50	ug/L			07/29/23 08:18	1

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# Client Sample Results

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

Job ID: 380-55362-1

**Client Sample ID: TB: HALAWA WELLS UNITS 1 & 2**

**Lab Sample ID: 380-55362-2**

Date Collected: 07/18/23 09:00

Matrix: Water

Date Received: 07/19/23 10:00

**Method: EPA-DW 524.2 - Volatile Organic Compounds (GC/MS) (Continued)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Bromomethane (Methyl Bromide)	<0.50		0.50	ug/L			07/28/23 01:41	1
Carbon disulfide	<0.50		0.50	ug/L			07/28/23 01:41	1
Carbon tetrachloride	<0.50		0.50	ug/L			07/28/23 01:41	1
Chlorobenzene	<0.50		0.50	ug/L			07/28/23 01:41	1
Chlorodibromomethane	<0.50		0.50	ug/L			07/29/23 08:18	1
Chloroethane	<0.50		0.50	ug/L			07/28/23 01:41	1
Chloroform (Trichloromethane)	<0.50		0.50	ug/L			07/28/23 01:41	1
Dichloromethane	<0.50		0.50	ug/L			07/28/23 01:41	1
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L			07/28/23 01:41	1
cis-1,3-Dichloropropene	<0.50		0.50	ug/L			07/29/23 08:18	1
Dibromomethane	<0.50		0.50	ug/L			07/28/23 01:41	1
Dichlorodifluoromethane	<0.50	*+	0.50	ug/L			07/28/23 01:41	1
Ethylbenzene	<0.50		0.50	ug/L			07/28/23 01:41	1
Hexachlorobutadiene	<0.50		0.50	ug/L			07/28/23 01:41	1
Isopropyl benzene	<0.50		0.50	ug/L			07/28/23 01:41	1
m,p-Xylenes	<0.50		0.50	ug/L			07/28/23 01:41	1
m-Dichlorobenzene (1,3-DCB)	<0.50		0.50	ug/L			07/28/23 01:41	1
Methyl-tert-butyl Ether (MTBE)	<0.50		0.50	ug/L			07/28/23 01:41	1
Naphthalene	<0.50		0.50	ug/L			07/28/23 01:41	1
n-Butylbenzene	<0.50		0.50	ug/L			07/28/23 01:41	1
N-Propylbenzene	<0.50		0.50	ug/L			07/28/23 01:41	1
o-Dichlorobenzene (1,2-DCB)	<0.50		0.50	ug/L			07/28/23 01:41	1
o-Chlorotoluene	<0.50		0.50	ug/L			07/28/23 01:41	1
o-Xylene	<0.50		0.50	ug/L			07/28/23 01:41	1
p-Chlorotoluene	<0.50		0.50	ug/L			07/28/23 01:41	1
p-Dichlorobenzene (1,4-DCB)	<0.50		0.50	ug/L			07/28/23 01:41	1
p-Isopropyltoluene	<0.50		0.50	ug/L			07/28/23 01:41	1
sec-Butylbenzene	<0.50		0.50	ug/L			07/28/23 01:41	1
Styrene	<0.50		0.50	ug/L			07/28/23 01:41	1
Tert-amyl methyl ether	<3.0		3.0	ug/L			07/28/23 01:41	1
Tert-butyl ethyl ether	<3.0		3.0	ug/L			07/28/23 01:41	1
tert-Butylbenzene	<0.50		0.50	ug/L			07/28/23 01:41	1
Tetrachloroethene (PCE)	<0.50		0.50	ug/L			07/28/23 01:41	1
Toluene	<0.50		0.50	ug/L			07/28/23 01:41	1
1,3-Dichloropropene, Total	<0.50	^3+	0.50	ug/L			07/28/23 01:41	1
Xylenes, Total	<0.50		0.50	ug/L			07/28/23 01:41	1
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L			07/28/23 01:41	1
trans-1,3-Dichloropropene	<0.50		0.50	ug/L			07/28/23 01:41	1
Trichloroethylene (TCE)	<0.50		0.50	ug/L			07/28/23 01:41	1
Trichlorofluoromethane (Freon 11)	<0.50		0.50	ug/L			07/28/23 01:41	1
Vinyl Chloride (VC)	<0.30		0.30	ug/L			07/29/23 08:18	1
Trichlorotrifluoroethane	<0.50		0.50	ug/L			07/29/23 08:18	1
Bromoethane	<0.50		0.50	ug/L			07/28/23 01:41	1
Chloromethane (methyl chloride)	<0.50		0.50	ug/L			07/28/23 01:41	1
Diisopropyl ether	<3.0		3.0	ug/L			07/28/23 01:41	1

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Acetaldehyde	8.4	T J N	ug/L		0.97	75-07-0		07/29/23 08:18	1
Furfural	7.5	T J N	ug/L		8.71	98-01-1		07/29/23 08:18	1
Heptane, 2,2,4,6,6-pentamethyl-	0.88	T J N	ug/L		11.31	13475-82-6		07/28/23 01:41	1

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# Client Sample Results

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

Job ID: 380-55362-1

**Client Sample ID: TB: HALAWA WELLS UNITS 1 & 2**

**Lab Sample ID: 380-55362-2**

**Date Collected: 07/18/23 09:00**

**Matrix: Water**

**Date Received: 07/19/23 10:00**

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		70 - 130		07/28/23 01:41	1
1,2-Dichloroethane-d4 (Surr)	101		70 - 130		07/29/23 08:18	1
4-Bromofluorobenzene (Surr)	106		70 - 130		07/28/23 01:41	1
4-Bromofluorobenzene (Surr)	118		70 - 130		07/29/23 08:18	1
Toluene-d8 (Surr)	93		70 - 130		07/28/23 01:41	1
Toluene-d8 (Surr)	89		70 - 130		07/29/23 08:18	1

**Method: EPA-DW2 504.1 - EDB, DBCP and 1,2,3-TCP (GC)**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3-Trichloropropane	<0.020		0.020	ug/L		07/25/23 09:22	07/25/23 22:08	1
1,2-D bromo-3-Chloropropane	<0.010		0.010	ug/L		07/25/23 09:22	07/25/23 22:08	1
1,2-D bromoethane	<0.010		0.010	ug/L		07/25/23 09:22	07/25/23 22:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane (Surr)	104		60 - 140	07/25/23 09:22	07/25/23 22:08	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GASOLINE	ND	U	0.02		mg/L			07/20/23 22:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
BROMOFLUOROBENZENE	78		60 - 140		07/20/23 22:38	1

# Action Limit Summary

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

Job ID: 380-55362-1

Client Sample ID: HALAWA WELLS UNITS 1 & 2

Lab Sample ID: 380-55362-1

## Compliance Check

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

Analyte	Result	Qualifier	Unit	HI Org Limit	EPAMCL Limit	EPAMCL S Limit	Method	Prep Type
Trihalomethanes, Total	<0.50		ug/L		80		524.2	Total/NA
1,1,1-Trichloroethane	<0.50		ug/L	200.0	200		524.2	Total/NA
1,1,2-Trichloroethane	<0.50		ug/L	5.000	5		524.2	Total/NA
1,1-Dichloroethylene	<0.50		ug/L	7.000	7		524.2	Total/NA
1,2,3-Trichloropropane	<0.50		ug/L	0.6000			524.2	Total/NA
1,2,4-Trichlorobenzene	<0.50		ug/L	70.00	70		524.2	Total/NA
1,2-Dichloroethane	<0.50		ug/L	5.000	5		524.2	Total/NA
1,2-Dichloropropane	<0.50		ug/L	5.000	5		524.2	Total/NA
Benzene	<0.50		ug/L	5.000	5		524.2	Total/NA
Carbon tetrachloride	<0.50		ug/L	5.000	5		524.2	Total/NA
Chlorobenzene	<0.50		ug/L	100.0	100		524.2	Total/NA
cis-1,2-Dichloroethylene	<0.50		ug/L	70.00	70		524.2	Total/NA
Dichloromethane	<0.50		ug/L	5.000	5		524.2	Total/NA
Ethylbenzene	<0.50		ug/L	700.0	700		524.2	Total/NA
o-Dichlorobenzene (1,2-DCB)	<0.50		ug/L	600.0	600		524.2	Total/NA
p-Dichlorobenzene (1,4-DCB)	<0.50		ug/L	75.000	75		524.2	Total/NA
Styrene	<0.50		ug/L	100.0	100		524.2	Total/NA
Tetrachloroethene (PCE)	<0.50		ug/L	5.000	5		524.2	Total/NA
Toluene	<0.50		ug/L	1000	1000		524.2	Total/NA
trans-1,2-Dichloroethylene	<0.50		ug/L	100.0	100		524.2	Total/NA
Trichloroethylene (TCE)	<0.50		ug/L	5.000	5		524.2	Total/NA
Vinyl Chloride (VC)	<0.30		ug/L	2.000	2		524.2	Total/NA
Xylenes, Total	<0.50		ug/L	10000	10000		524.2	Total/NA
Alachlor	<0.049		ug/L		2		525.2	Total/NA
Atrazine	<0.049		ug/L		3		525.2	Total/NA
Benzo[a]pyrene	<0.020		ug/L		0.2		525.2	Total/NA
Bis(2-ethylhexyl) phthalate	<0.59		ug/L		6		525.2	Total/NA
Di(2-ethylhexyl)adipate	<0.59		ug/L		400		525.2	Total/NA
Endrin	<0.098		ug/L		2		525.2	Total/NA
gamma-BHC (Lindane)	<0.039		ug/L		0.2		525.2	Total/NA
Heptachlor	<0.039		ug/L		0.4		525.2	Total/NA
Heptachlor epoxide (isomer B)	<0.049		ug/L		0.2		525.2	Total/NA
Hexachlorobenzene	<0.049		ug/L		1		525.2	Total/NA
Hexachlorocyclopentadiene	<0.049		ug/L		50		525.2	Total/NA
Methoxychlor	<0.098		ug/L		40		525.2	Total/NA
Simazine	<0.049		ug/L		4		525.2	Total/NA
1,2,3-Trichloropropane	<0.020		ug/L	0.6000			504.1	Total/NA
1,2-D bromo-3-Chloropropane	<0.010		ug/L		0.2		504.1	Total/NA
1,2-D bromoethane	<0.010		ug/L		0.05		504.1	Total/NA
Toxaphene	<0.50		ug/L		3		505	Total/NA
Alachlor	<0.10		ug/L		2		505	Total/NA
Endrin	<0.010		ug/L		2		505	Total/NA
Heptachlor	<0.010		ug/L		0.4		505	Total/NA
Heptachlor epoxide	0.015		ug/L		0.2		505	Total/NA
gamma-BHC (Lindane)	<0.010		ug/L		0.2		505	Total/NA
Methoxychlor	<0.050		ug/L		40		505	Total/NA
Polychlorinated biphenyls, Total	<0.10		ug/L		0.5		505	Total/NA
Chloride	200		mg/L			250	300.0	Total/NA

Eurofins Eaton Analytical Pomona

# Action Limit Summary

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

Job ID: 380-55362-1

Client Sample ID: HALAWA WELLS UNITS 1 & 2 (Continued)

Lab Sample ID: 380-55362-1

## Compliance Check

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

Analyte	Result	Qualifier	Unit	HI Org	EPAMCL	EPAMCL	Method	Prep Type
				Limit	Limit	S		
Nitrate as N	1.7		mg/L		10		300.0	Total/NA
Nitrite as N	<0.25		mg/L		1		300.0	Total/NA
Sulfate	44		mg/L			250	300.0	Total/NA
Antimony	<1.0		ug/L		6		200.8	Total/NA
Arsenic	<1.0		ug/L		10		200.8	Total/NA
Beryllium	<0.30		ug/L		4		200.8	Total/NA
Cadmium	<0.50		ug/L		5		200.8	Total/NA
Chromium	2.5		ug/L		100		200.8	Total/NA
Copper	1.6		ug/L			1300	200.8	Total/NA
Lead	<0.50		ug/L		15.000		200.8	Total/NA
Selenium	2.2		ug/L		50		200.8	Total/NA
Silver	<0.50		ug/L			100	200.8	Total/NA
Thallium	<0.30		ug/L		2		200.8	Total/NA
Zinc	18		ug/L			5000	200.8	Total/NA
Mercury	<0.10		ug/L		2		245.1	Total/NA
Total Dissolved Solids	490		mg/L			500	SM 2540C	Total/NA
Fluoride	0.052		mg/L		4	2	SM 4500 F C	Total/NA

Client Sample ID: TB: HALAWA WELLS UNITS 1 & 2

Lab Sample ID: 380-55362-2

## 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	HI Org	EPAMCL	RL	Method	Prep Type
				Limit	Limit			
Trihalomethanes, Total	<0.50		ug/L		80	0.50	524.2	Total/NA
1,1,1-Trichloroethane	<0.50		ug/L	200.0	200	0.50	524.2	Total/NA
1,1,2-Trichloroethane	<0.50		ug/L	5.000	5	0.50	524.2	Total/NA
1,1-Dichloroethylene	<0.50		ug/L	7.000	7	0.50	524.2	Total/NA
1,2,3-Trichloropropane	<0.50		ug/L	0.6000		0.50	524.2	Total/NA
1,2,4-Trichlorobenzene	<0.50		ug/L	70.00	70	0.50	524.2	Total/NA
1,2-Dichloroethane	<0.50		ug/L	5.000	5	0.50	524.2	Total/NA
1,2-Dichloropropane	<0.50		ug/L	5.000	5	0.50	524.2	Total/NA
Benzene	<0.50		ug/L	5.000	5	0.50	524.2	Total/NA
Carbon tetrachloride	<0.50		ug/L	5.000	5	0.50	524.2	Total/NA
Chlorobenzene	<0.50		ug/L	100.0	100	0.50	524.2	Total/NA
Dichloromethane	<0.50		ug/L	5.000	5	0.50	524.2	Total/NA
cis-1,2-Dichloroethylene	<0.50		ug/L	70.00	70	0.50	524.2	Total/NA
Ethylbenzene	<0.50		ug/L	700.0	700	0.50	524.2	Total/NA
o-Dichlorobenzene (1,2-DCB)	<0.50		ug/L	600.0	600	0.50	524.2	Total/NA
p-Dichlorobenzene (1,4-DCB)	<0.50		ug/L	75.000	75	0.50	524.2	Total/NA
Styrene	<0.50		ug/L	100.0	100	0.50	524.2	Total/NA
Tetrachloroethene (PCE)	<0.50		ug/L	5.000	5	0.50	524.2	Total/NA
Toluene	<0.50		ug/L	1000	1000	0.50	524.2	Total/NA
Xylenes, Total	<0.50		ug/L	10000	10000	0.50	524.2	Total/NA
trans-1,2-Dichloroethylene	<0.50		ug/L	100.0	100	0.50	524.2	Total/NA
Trichloroethylene (TCE)	<0.50		ug/L	5.000	5	0.50	524.2	Total/NA

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# Action Limit Summary

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

Job ID: 380-55362-1

**Client Sample ID: TB: HALAWA WELLS UNITS 1 & 2**  
**(Continued)**

**Lab Sample ID: 380-55362-2**

## 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	HI Org Limit	EPAMCL Limit	RL	Method	Prep Type
Vinyl Chloride (VC)	<0.30		ug/L	2.000	2	0.30	524.2	Total/NA
1,2,3-Trichloropropane	<0.020		ug/L	0.6000		0.020	504.1	Total/NA
1,2-D bromo-3-Chloropropane	<0.010		ug/L		0.2	0.010	504.1	Total/NA
1,2-D bromoethane	<0.010		ug/L		0.05	0.010	504.1	Total/NA

# Surrogate Summary

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

Job ID: 380-55362-1

## Method: 524.2 - Volatile Organic Compounds (GC/MS SIM)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		TOL (70-130)	BFB (70-130)	DCA (70-130)
380-55362-1	HALAWA WELLS UNITS 1 & 2	100	93	109
380-55362-2	TB: HALAWA WELLS UNITS 1 & 2	100	83	114
LCS 380-48215/2	Lab Control Sample	99	99	102
LCSD 380-48215/3	Lab Control Sample Dup	97	89	101
MB 380-48215/5	Method Blank	97	92	100

**Surrogate Legend**  
TOL = Toluene-d8 (Surr)  
BFB = 4-Bromofluorobenzene (Surr)  
DCA = 1,2-Dichloroethane-d4 (Surr)

## Method: 524.2 - Volatile Organic Compounds (GC/MS SIM)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		TOL (50-150)	BFB (50-150)	DCA (50-150)
MRL 380-48215/4	Lab Control Sample	93	90	101

**Surrogate Legend**  
TOL = Toluene-d8 (Surr)  
BFB = 4-Bromofluorobenzene (Surr)  
DCA = 1,2-Dichloroethane-d4 (Surr)

## Method: 524.2 - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		DCA (70-130)	BFB (70-130)	TOL (70-130)
380-55362-1	HALAWA WELLS UNITS 1 & 2	106	102	91
380-55362-1	HALAWA WELLS UNITS 1 & 2	103	100	93
380-55362-2	TB: HALAWA WELLS UNITS 1 & 2	103	106	93
380-55362-2	TB: HALAWA WELLS UNITS 1 & 2	101	118	89
LCS 380-48949/5	Lab Control Sample	100	98	97
LCS 380-49405/3	Lab Control Sample	100	111	93
LCS 380-49627/11	Lab Control Sample	101	96	101
LCSD 380-48949/6	Lab Control Sample Dup	101	99	97
LCSD 380-49405/4	Lab Control Sample Dup	101	113	93
LCSD 380-49627/12	Lab Control Sample Dup	99	100	102
MB 380-48949/8	Method Blank	100	105	93
MB 380-49405/5	Method Blank	101	112	88
MB 380-49627/15	Method Blank	102	100	93
MRL 380-48949/3	Lab Control Sample	100	103	93
MRL 380-48949/4	Lab Control Sample	103	100	94
MRL 380-49627/13	Lab Control Sample	102	102	95
MRL 380-49627/14	Lab Control Sample	104	100	95

**Surrogate Legend**  
DCA = 1,2-Dichloroethane-d4 (Surr)

# Surrogate Summary

Client: City & County of Honolulu

Job ID: 380-55362-1

Project/Site: RED-HILL

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		2NMX (70-130)	PRY (70-130)	TPP (70-130)
380-55362-1	HALAWA WELLS UNITS 1 & 2	103	90	119
380-55418-AO-1-B MS	Matrix Spike	101	96	115
380-55418-AO-1-C MSD	Matrix Spike Duplicate	103	93	124
LCS 380-48256/23-A	Lab Control Sample	102	86	109
LCSD 380-48256/24-A	Lab Control Sample Dup	104	90	115
MB 380-48256/21-A	Method Blank	106	86	120
MRL 380-48256/22-A	Lab Control Sample	106	88	114

### Surrogate Legend

2NMX = 2-Nitro-m-xylene

PRY = Perylene-d12

TPP = Triphenylphosphate

## Method: 504.1 - EDB, DBCP and 1,2,3-TCP (GC)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		DBPP1 (60-140)
380-55132-J-4-A DU	Duplicate	109
380-55132-K-1-B MS	Matrix Spike	102
380-55132-K-1-C MSD	Matrix Spike Duplicate	101
380-55362-1	HALAWA WELLS UNITS 1 & 2	110
380-55362-2	TB: HALAWA WELLS UNITS 1 & 2	104
LCS 380-48695/3-A	Lab Control Sample	111
MBL 380-48695/4-A	Method Blank	102
MRL 380-48695/1-A	Lab Control Sample	98
MRL 380-48695/2-A	Lab Control Sample	108

### Surrogate Legend

DBPP = 1,2-D bromopropane (Surr)

## Method: 505 - Organochlorine Pesticides/PCBs (GC)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		TCX1 (70-130)
380-55362-1	HALAWA WELLS UNITS 1 & 2	102
380-55418-J-1-A MS	Matrix Spike	106
380-55418-K-1-A MS	Matrix Spike	102
380-55418-M-1-A MSD	Matrix Spike Duplicate	104
380-55418-N-1-A MSD	Matrix Spike Duplicate	100
380-55450-Q-3-A MS	Matrix Spike	111
380-55450-R-3-A MS	Matrix Spike	114
MBL 380-48321/4-A	Method Blank	110
MRL 380-48321/2-A	Lab Control Sample	107
MRL 380-48321/3-A	Lab Control Sample	108

# Surrogate Summary

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

Job ID: 380-55362-1

### Surrogate Legend

TCX = Tetrachloro-m-xylene

## Method: 625 Acid/Base/PAH + 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)	PHL (0-130)	PRY (36-161)	TBP (30-130)
108481-B1	Method Blank	100	99	98	93	129	103	124
108481-BS1	Lab Control Sample	109	104	100	99	104	106	101
108481-BS2	Lab Control Sample Dup	107	105	101	96	84	107	97

### Surrogate Legend

(d10-Acenaphthene) = (d10-Acenaphthene)

(d10-Phenanthrene) = (d10-Phenanthrene)

CRY = (d12-Chrysene)

NPT = (d8-Naphthalene)

PHL = (d5-Phenol)

PRY = (d12-Perylene)

TBP = (2,4,6-Tribromophenol)

## Method: 625 Acid/Base/PAH + TICs - EPA 625 Base/Neutral and Acid Organics i

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)						
		Acenaphtl (27-133)	Phenanth (43-129)	CRY (52-144)	NPT (25-125)	PHL (0-85)	PRY (36-161)	TBP (31-143)
380-55362-1	HALAWA WELLS UNITS 1 & 2	97	96	92	87	85	98	139

### Surrogate Legend

(d10-Acenaphthene) = (d10-Acenaphthene)

(d10-Phenanthrene) = (d10-Phenanthrene)

CRY = (d12-Chrysene)

NPT = (d8-Naphthalene)

PHL = (d5-Phenol)

PRY = (d12-Perylene)

TBP = (2,4,6-Tribromophenol)

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

Matrix: WATER

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)						
		BFB						
23VG39G12B	Method Blank							

### Surrogate Legend

BFB = BROMOFLUOROBENZENE

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

Matrix: WATER

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)						
		BFB						
23VG39G12C	LCD	110						
23VG39G12L	Lab Control Sample	108						

# Surrogate Summary

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

Job ID: 380-55362-1

## 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)
380-55362-1	HALAWA WELLS UNITS 1 & 2	76
380-55362-2	TB: HALAWA WELLS UNITS 1 & 2	78

## Surrogate Legend

BFB = BROMOFLUOROBENZENE

## 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	XACOSAI
23DSG037WB	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)
23DSG037WL	Lab Control Sample	66	87
23J5G037WL	Lab Control Sample	74	88
23J8G037WL	Lab Control Sample	94	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)
380-55362-1	HALAWA WELLS UNITS 1 & 2	63	88

## Surrogate Legend

BB = BROMOBENZENE

HEXACOSANE = HEXACOSANE



# QC Sample Results

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

Job ID: 380-55362-1

## Method: 524.2 - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 380-48949/8**  
**Matrix: Water**  
**Analysis Batch: 48949**

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

Analyte	MB	MB	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L			07/27/23 21:15	1
1,1,1-Trichloroethane	<0.50		0.50	ug/L			07/27/23 21:15	1
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L			07/27/23 21:15	1
1,1,2-Trichloroethane	<0.50		0.50	ug/L			07/27/23 21:15	1
1,1-Dichloroethane	<0.50		0.50	ug/L			07/27/23 21:15	1
1,1-Dichlorethylene	<0.50		0.50	ug/L			07/27/23 21:15	1
1,1-Dichloropropene	<0.50		0.50	ug/L			07/27/23 21:15	1
1,2,3-Trichlorobenzene	<0.50		0.50	ug/L			07/27/23 21:15	1
1,2,3-Trichloropropane	<0.50		0.50	ug/L			07/27/23 21:15	1
1,2,4-Trichlorobenzene	<0.50		0.50	ug/L			07/27/23 21:15	1
1,2,4-Trimethy benzene	<0.50		0.50	ug/L			07/27/23 21:15	1
1,2-Dichloroethane	<0.50		0.50	ug/L			07/27/23 21:15	1
1,2-Dichloropropane	<0.50		0.50	ug/L			07/27/23 21:15	1
1,3,5-Trimethy benzene	<0.50		0.50	ug/L			07/27/23 21:15	1
1,3-Dichloropropane	<0.50		0.50	ug/L			07/27/23 21:15	1
2,2-Dichloropropane	<0.50		0.50	ug/L			07/27/23 21:15	1
2-Butanone (MEK)	<5.0		5.0	ug/L			07/27/23 21:15	1
4-Methyl-2-pentanone (MIBK)	<5.0		5.0	ug/L			07/27/23 21:15	1
Acetone	<500		500	ug/L			07/27/23 21:15	1
Benzene	<0.50		0.50	ug/L			07/27/23 21:15	1
Bromobenzene	<0.50		0.50	ug/L			07/27/23 21:15	1
Bromochloromethane	<0.50		0.50	ug/L			07/27/23 21:15	1
Bromodichloromethane	<0.50		0.50	ug/L			07/27/23 21:15	1
Bromoform	<0.50		0.50	ug/L			07/27/23 21:15	1
Bromomethane (Methyl Bromide)	<0.50		0.50	ug/L			07/27/23 21:15	1
Carbon disulfide	<0.50		0.50	ug/L			07/27/23 21:15	1
Carbon tetrachloride	<0.50		0.50	ug/L			07/27/23 21:15	1
Chlorobenzene	<0.50		0.50	ug/L			07/27/23 21:15	1
Chlorodibromomethane	<0.50		0.50	ug/L			07/27/23 21:15	1
Chloroethane	<0.50		0.50	ug/L			07/27/23 21:15	1
Chloroform (Trichloromethane)	<0.50		0.50	ug/L			07/27/23 21:15	1
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L			07/27/23 21:15	1
cis-1,3-Dichloropropene	<0.50		0.50	ug/L			07/27/23 21:15	1
Dibromomethane	<0.50		0.50	ug/L			07/27/23 21:15	1
Dichlorodifluoromethane	<0.50		0.50	ug/L			07/27/23 21:15	1
Dichloromethane	<0.50		0.50	ug/L			07/27/23 21:15	1
Ethylbenzene	<0.50		0.50	ug/L			07/27/23 21:15	1
Hexachlorobutadiene	<0.50		0.50	ug/L			07/27/23 21:15	1
Isopropy benzene	<0.50		0.50	ug/L			07/27/23 21:15	1
m,p-Xylenes	<0.50		0.50	ug/L			07/27/23 21:15	1
m-Dichlorobenzene (1,3-DCB)	<0.50		0.50	ug/L			07/27/23 21:15	1
Methyl-tert-butyl Ether (MTBE)	<0.50		0.50	ug/L			07/27/23 21:15	1
Naphthalene	<0.50		0.50	ug/L			07/27/23 21:15	1
n-Butylbenzene	<0.50		0.50	ug/L			07/27/23 21:15	1
N-Propylbenzene	<0.50		0.50	ug/L			07/27/23 21:15	1
o-Chlorotoluene	<0.50		0.50	ug/L			07/27/23 21:15	1
o-Dichlorobenzene (1,2-DCB)	<0.50		0.50	ug/L			07/27/23 21:15	1
o-Xylene	<0.50		0.50	ug/L			07/27/23 21:15	1

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# QC Sample Results

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

Job ID: 380-55362-1

## Method: 524.2 - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: MB 380-48949/8**  
**Matrix: Water**  
**Analysis Batch: 48949**

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

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
p-Chlorotoluene	<0.50		0.50	ug/L			07/27/23 21:15	1
p-Dichlorobenzene (1,4-DCB)	<0.50		0.50	ug/L			07/27/23 21:15	1
p-Isopropyltoluene	<0.50		0.50	ug/L			07/27/23 21:15	1
sec-Butylbenzene	<0.50		0.50	ug/L			07/27/23 21:15	1
Styrene	<0.50		0.50	ug/L			07/27/23 21:15	1
Tert-amyl methyl ether	<3.0		3.0	ug/L			07/27/23 21:15	1
1,3-Dichloropropene, Total	<0.50		0.50	ug/L			07/27/23 21:15	1
Tert-butyl ethyl ether	<3.0		3.0	ug/L			07/27/23 21:15	1
tert-Butylbenzene	<0.50		0.50	ug/L			07/27/23 21:15	1
Tetrachloroethene (PCE)	<0.50		0.50	ug/L			07/27/23 21:15	1
Toluene	<0.50		0.50	ug/L			07/27/23 21:15	1
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L			07/27/23 21:15	1
trans-1,3-Dichloropropene	<0.50		0.50	ug/L			07/27/23 21:15	1
Trichloroethylene (TCE)	<0.50		0.50	ug/L			07/27/23 21:15	1
Bromoethane	<0.50		0.50	ug/L			07/27/23 21:15	1
Trichlorofluoromethane (Freon 11)	<0.50		0.50	ug/L			07/27/23 21:15	1
Chloromethane (methyl chloride)	<0.50		0.50	ug/L			07/27/23 21:15	1
Trichlorotrifluoroethane	<0.50		0.50	ug/L			07/27/23 21:15	1
Diisopropyl ether	<3.0		3.0	ug/L			07/27/23 21:15	1
Vinyl Chloride (VC)	<0.30		0.30	ug/L			07/27/23 21:15	1
Xylenes, Total	<0.50		0.50	ug/L			07/27/23 21:15	1

Tentatively Identified Compound	MB Est. Result	MB Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Tentatively Identified Compound	None		ug/L			N/A		07/27/23 21:15	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		70 - 130		07/27/23 21:15	1
4-Bromofluorobenzene (Surr)	105		70 - 130		07/27/23 21:15	1
Toluene-d8 (Surr)	93		70 - 130		07/27/23 21:15	1

**Lab Sample ID: LCS 380-48949/5**  
**Matrix: Water**  
**Analysis Batch: 48949**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1,2-Tetrachloroethane	5.00	4.94		ug/L		99	70 - 130
1,1,1-Trichloroethane	5.00	5.19		ug/L		104	70 - 130
1,1,1,2,2-Tetrachloroethane	5.00	4.98		ug/L		100	70 - 130
1,1,2-Trichloroethane	5.00	5.14		ug/L		103	70 - 130
1,1-Dichloroethane	5.00	5.19		ug/L		104	70 - 130
1,1-Dichloroethylene	5.00	5.49		ug/L		110	70 - 130
1,1-Dichloropropene	5.00	4.80		ug/L		96	70 - 130
1,2,3-Trichlorobenzene	5.00	5.82		ug/L		116	70 - 130
1,2,3-Trichloropropane	5.00	5.23		ug/L		105	70 - 130
1,2,4-Trichlorobenzene	5.00	5.91		ug/L		118	70 - 130
1,2,4-Trimethyl benzene	5.00	5.08		ug/L		102	70 - 130
1,2-Dichloroethane	5.00	5.32		ug/L		106	70 - 130
1,2-Dichloropropane	5.00	5.28		ug/L		106	70 - 130

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# QC Sample Results

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

Job ID: 380-55362-1

## Method: 524.2 - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: LCS 380-48949/5**  
**Matrix: Water**  
**Analysis Batch: 48949**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,3,5-Trimethy benzene	5.00	4.91		ug/L		98	70 - 130
1,3-Dichloropropane	5.00	5.20		ug/L		104	70 - 130
2,2-Dichloropropane	5.00	5.04		ug/L		101	70 - 130
2-Butanone (MEK)	50.0	54.2		ug/L		108	70 - 130
4-Methyl-2-pentanone (MIBK)	50.0	51.4		ug/L		103	70 - 130
Acetone	50.0	58.9	J	ug/L		118	70 - 130
Benzene	5.00	5.19		ug/L		104	70 - 130
Bromobenzene	5.00	5.23		ug/L		105	70 - 130
Bromochloromethane	5.00	5.36		ug/L		107	70 - 130
Bromodichloromethane	5.00	4.72		ug/L		94	70 - 130
Bromoform	5.00	4.99		ug/L		100	70 - 130
Bromomethane (Methyl Bromide)	5.00	5.87		ug/L		117	70 - 130
Carbon disulfide	5.00	4.54		ug/L		91	70 - 130
Carbon tetrachloride	5.00	4.94		ug/L		99	70 - 130
Chlorobenzene	5.00	5.10		ug/L		102	70 - 130
Chlorodibromomethane	5.00	5.37		ug/L		107	70 - 130
cis-1,3-Dichloropropene	5.00	5.39		ug/L		108	70 - 130
Dichloromethane	5.00	5.34		ug/L		107	70 - 130
Ethylbenzene	5.00	5.09		ug/L		102	70 - 130
Hexachlorobutadiene	5.00	5.52		ug/L		110	70 - 130
Isopropyl benzene	5.00	5.02		ug/L		100	70 - 130
m,p-Xylenes	10.0	9.78		ug/L		98	70 - 130
m-Dichlorobenzene (1,3-DCB)	5.00	4.99		ug/L		100	70 - 130
Methyl-tert-butyl Ether (MTBE)	5.00	4.94		ug/L		99	70 - 130
Naphthalene	5.00	5.50		ug/L		110	70 - 130
n-Butylbenzene	5.00	5.45		ug/L		109	70 - 130
N-Propylbenzene	5.00	5.04		ug/L		101	70 - 130
o-Chlorotoluene	5.00	5.20		ug/L		104	70 - 130
o-Dichlorobenzene (1,2-DCB)	5.00	5.45		ug/L		109	70 - 130
o-Xylene	5.00	4.88		ug/L		98	70 - 130
p-Chlorotoluene	5.00	4.80		ug/L		96	70 - 130
p-Dichlorobenzene (1,4-DCB)	5.00	5.09		ug/L		102	70 - 130
p-Isopropyltoluene	5.00	4.81		ug/L		96	70 - 130
sec-Butylbenzene	5.00	4.82		ug/L		96	70 - 130
Styrene	5.00	5.31		ug/L		106	70 - 130
Tert-amyl methyl ether	5.00	5.12		ug/L		102	70 - 130
1,3-Dichloropropene, Total	10.0	11.5		ug/L		115	70 - 130
Tert-butyl ethyl ether	5.00	5.12		ug/L		102	70 - 130
tert-Butylbenzene	5.00	4.89		ug/L		98	70 - 130
Tetrachloroethene (PCE)	5.00	4.97		ug/L		99	70 - 130
Toluene	5.00	4.96		ug/L		99	70 - 130
trans-1,2-Dichloroethylene	5.00	5.49		ug/L		110	70 - 130
trans-1,3-Dichloropropene	5.00	6.15		ug/L		123	70 - 130
Trichloroethylene (TCE)	5.00	5.18		ug/L		104	70 - 130
Bromoethane	5.00	5.38		ug/L		108	70 - 130
Trichlorofluoromethane (Freon 11)	5.00	5.78		ug/L		116	70 - 130
Trichlorotrifluoroethane	5.00	4.85		ug/L		97	70 - 130
Diisopropyl ether	5.00	5.00		ug/L		100	70 - 130

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-55362-1

## Method: 524.2 - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: LCS 380-48949/5**  
**Matrix: Water**  
**Analysis Batch: 48949**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Vinyl Chloride (VC)	5.00	5.78		ug/L		116	70 - 130
Xylenes, Total	15.0	14.7		ug/L		98	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	100		70 - 130
4-Bromofluorobenzene (Surr)	98		70 - 130
Toluene-d8 (Surr)	97		70 - 130

**Lab Sample ID: LCSD 380-48949/6**  
**Matrix: Water**  
**Analysis Batch: 48949**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	5.00	4.47		ug/L		89	70 - 130	10	20
1,1,1-Trichloroethane	5.00	4.84		ug/L		97	70 - 130	7	20
1,1,2,2-Tetrachloroethane	5.00	4.70		ug/L		94	70 - 130	6	20
1,1,2-Trichloroethane	5.00	4.78		ug/L		96	70 - 130	7	20
1,1-Dichloroethane	5.00	4.79		ug/L		96	70 - 130	8	20
1,1-Dichlorethylene	5.00	5.23		ug/L		105	70 - 130	5	20
1,1-Dichloropropene	5.00	4.41		ug/L		88	70 - 130	9	20
1,2,3-Trichlorobenzene	5.00	5.41		ug/L		108	70 - 130	7	20
1,2,3-Trichloropropane	5.00	4.76		ug/L		95	70 - 130	9	20
1,2,4-Trichlorobenzene	5.00	5.47		ug/L		109	70 - 130	8	20
1,2,4-Trimethy benzene	5.00	4.60		ug/L		92	70 - 130	10	20
1,2-Dichloroethane	5.00	4.98		ug/L		100	70 - 130	7	20
1,2-Dichloropropane	5.00	4.86		ug/L		97	70 - 130	8	20
1,3,5-Trimethy benzene	5.00	4.55		ug/L		91	70 - 130	8	20
1,3-Dichloropropane	5.00	4.80		ug/L		96	70 - 130	8	20
2,2-Dichloropropane	5.00	4.80		ug/L		96	70 - 130	5	20
2-Butanone (MEK)	50.0	49.3		ug/L		99	70 - 130	9	20
4-Methyl-2-pentanone (MIBK)	50.0	47.0		ug/L		94	70 - 130	9	20
Acetone	50.0	54.0	J	ug/L		108	70 - 130	9	20
Benzene	5.00	4.69		ug/L		94	70 - 130	10	20
Bromobenzene	5.00	4.80		ug/L		96	70 - 130	8	20
Bromochloromethane	5.00	4.81		ug/L		96	70 - 130	11	20
Bromodichloromethane	5.00	4.23		ug/L		85	70 - 130	11	20
Bromoform	5.00	4.37		ug/L		87	70 - 130	13	20
Bromomethane (Methyl Bromide)	5.00	6.03		ug/L		121	70 - 130	3	20
Carbon disulfide	5.00	4.27		ug/L		85	70 - 130	6	20
Carbon tetrachloride	5.00	4.50		ug/L		90	70 - 130	9	20
Chlorobenzene	5.00	4.69		ug/L		94	70 - 130	8	20
Chlorodibromomethane	5.00	4.63		ug/L		93	70 - 130	15	20
cis-1,3-Dichloropropene	5.00	5.00		ug/L		100	70 - 130	7	20
Dichloromethane	5.00	4.86		ug/L		97	70 - 130	10	20
Ethylbenzene	5.00	4.67		ug/L		93	70 - 130	8	20
Hexachlorobutadiene	5.00	5.75		ug/L		115	70 - 130	4	20
Isopropy benzene	5.00	4.64		ug/L		93	70 - 130	8	20
m,p-Xylenes	10.0	8.90		ug/L		89	70 - 130	9	20

# QC Sample Results

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

Job ID: 380-55362-1

## Method: 524.2 - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: LCSD 380-48949/6**  
**Matrix: Water**  
**Analysis Batch: 48949**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
m-Dichlorobenzene (1,3-DCB)	5.00	4.77		ug/L		95	70 - 130	5	20
Methyl-tert-butyl Ether (MTBE)	5.00	4.56		ug/L		91	70 - 130	8	20
Naphthalene	5.00	5.11		ug/L		102	70 - 130	7	20
n-Butylbenzene	5.00	5.03		ug/L		101	70 - 130	8	20
N-Propylbenzene	5.00	4.56		ug/L		91	70 - 130	10	20
o-Chlorotoluene	5.00	4.95		ug/L		99	70 - 130	5	20
o-Dichlorobenzene (1,2-DCB)	5.00	4.90		ug/L		98	70 - 130	11	20
o-Xylene	5.00	4.58		ug/L		92	70 - 130	6	20
p-Chlorotoluene	5.00	4.40		ug/L		88	70 - 130	9	20
p-Dichlorobenzene (1,4-DCB)	5.00	4.80		ug/L		96	70 - 130	6	20
p-Isopropyltoluene	5.00	4.54		ug/L		91	70 - 130	6	20
sec-Butylbenzene	5.00	4.51		ug/L		90	70 - 130	7	20
Styrene	5.00	4.86		ug/L		97	70 - 130	9	20
Tert-amyl methyl ether	5.00	4.82		ug/L		96	70 - 130	6	20
1,3-Dichloropropene, Total	10.0	10.7		ug/L		107	70 - 130	7	20
Tert-butyl ethyl ether	5.00	4.82		ug/L		96	70 - 130	6	20
tert-Butylbenzene	5.00	4.66		ug/L		93	70 - 130	5	20
Tetrachloroethene (PCE)	5.00	4.55		ug/L		91	70 - 130	9	20
Toluene	5.00	4.59		ug/L		92	70 - 130	8	20
trans-1,2-Dichloroethylene	5.00	5.03		ug/L		101	70 - 130	9	20
trans-1,3-Dichloropropene	5.00	5.71		ug/L		114	70 - 130	7	20
Trichloroethylene (TCE)	5.00	4.85		ug/L		97	70 - 130	7	20
Bromoethane	5.00	4.89		ug/L		98	70 - 130	10	20
Trichlorofluoromethane (Freon 11)	5.00	5.07		ug/L		101	70 - 130	13	20
Trichlorotrifluoroethane	5.00	4.91		ug/L		98	70 - 130	1	20
Diisopropyl ether	5.00	4.64		ug/L		93	70 - 130	8	20
Vinyl Chloride (VC)	5.00	5.35		ug/L		107	70 - 130	8	20
Xylenes, Total	15.0	13.5		ug/L		90	70 - 130	8	20

Surrogate	LCSD %Recovery	LCSD Qualifier	LCSD Limits
1,2-Dichloroethane-d4 (Surr)	101		70 - 130
4-Bromofluorobenzene (Surr)	99		70 - 130
Toluene-d8 (Surr)	97		70 - 130

**Lab Sample ID: MRL 380-48949/3**  
**Matrix: Water**  
**Analysis Batch: 48949**

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
m,p-Xylenes	0.500	0.612		ug/L		122	50 - 150
Vinyl Chloride (VC)	0.250	<0.077	^3-	ug/L		-65	50 - 150

Surrogate	MRL %Recovery	MRL Qualifier	MRL Limits
1,2-Dichloroethane-d4 (Surr)	100		70 - 130
4-Bromofluorobenzene (Surr)	103		70 - 130
Toluene-d8 (Surr)	93		70 - 130

# QC Sample Results

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

Job ID: 380-55362-1

## Method: 524.2 - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: MRL 380-48949/4**  
**Matrix: Water**  
**Analysis Batch: 48949**

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1,2-Tetrachloroethane	0.500	0.447	J	ug/L		89	50 - 150
1,1,1-Trichloroethane	0.500	0.555		ug/L		111	50 - 150
1,1,2,2-Tetrachloroethane	0.500	0.614		ug/L		123	50 - 150
1,1,2-Trichloroethane	0.500	0.558		ug/L		112	50 - 150
1,1-Dichloroethane	0.500	0.581		ug/L		116	50 - 150
1,1-Dichlorethylene	0.500	0.612		ug/L		122	50 - 150
1,1-Dichloropropene	0.500	0.592		ug/L		118	50 - 150
1,2,3-Trichlorobenzene	0.500	0.638		ug/L		128	50 - 150
1,2,3-Trichloropropane	0.500	0.545		ug/L		109	50 - 150
1,2,4-Trichlorobenzene	0.500	0.541		ug/L		108	50 - 150
1,2,4-Trimethy benzene	0.500	0.535		ug/L		107	50 - 150
1,2-Dichloroethane	0.500	0.649		ug/L		130	50 - 150
1,2-Dichloropropane	0.500	0.622		ug/L		124	50 - 150
1,3,5-Trimethy benzene	0.500	0.490	J	ug/L		98	50 - 150
1,3-Dichloropropane	0.500	0.591		ug/L		118	50 - 150
2,2-Dichloropropane	0.500	0.520		ug/L		104	50 - 150
2-Butanone (MEK)	5.00	6.27		ug/L		125	50 - 150
4-Methyl-2-pentanone (MIBK)	5.00	5.22		ug/L		104	50 - 150
Acetone	5.00	6.62	J	ug/L		132	50 - 150
Benzene	0.500	0.594		ug/L		119	50 - 150
Bromobenzene	0.500	0.624		ug/L		125	50 - 150
Bromochloromethane	0.500	0.640		ug/L		128	50 - 150
Bromodichloromethane	0.500	0.335	J	ug/L		67	50 - 150
Bromoform	0.500	1.31	^3+	ug/L		263	50 - 150
Bromomethane (Methyl Bromide)	0.500	0.545		ug/L		109	50 - 150
Carbon disulfide	0.500	0.596		ug/L		119	50 - 150
Carbon tetrachloride	0.500	0.524		ug/L		105	50 - 150
Chlorobenzene	0.500	0.571		ug/L		114	50 - 150
Chlorodibromomethane	0.500	0.137	J ^3-	ug/L		27	50 - 150
cis-1,3-Dichloropropene	0.500	1.14	^3+	ug/L		228	50 - 150
Dichloromethane	0.500	0.473	J	ug/L		95	50 - 150
Ethylbenzene	0.500	0.533		ug/L		107	50 - 150
Hexachlorobutadiene	0.500	0.590		ug/L		118	50 - 150
Isopropyl benzene	0.500	0.552		ug/L		110	50 - 150
m,p-Xylenes	1.00	0.973		ug/L		97	50 - 150
m-Dichlorobenzene (1,3-DCB)	0.500	0.583		ug/L		117	50 - 150
Methyl-tert-butyl Ether (MTBE)	0.500	0.611		ug/L		122	50 - 150
Naphthalene	0.500	0.591		ug/L		118	50 - 150
n-Butylbenzene	0.500	0.571		ug/L		114	50 - 150
N-Propylbenzene	0.500	0.511		ug/L		102	50 - 150
o-Chlorotoluene	0.500	0.609		ug/L		122	50 - 150
o-Dichlorobenzene (1,2-DCB)	0.500	0.601		ug/L		120	50 - 150
o-Xylene	0.500	0.524		ug/L		105	50 - 150
p-Chlorotoluene	0.500	0.522		ug/L		104	50 - 150
p-Dichlorobenzene (1,4-DCB)	0.500	0.563		ug/L		113	50 - 150
p-Isopropyltoluene	0.500	0.486	J	ug/L		97	50 - 150
sec-Butylbenzene	0.500	0.537		ug/L		107	50 - 150
Styrene	0.500	0.500		ug/L		100	50 - 150

# QC Sample Results

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

Job ID: 380-55362-1

## Method: 524.2 - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: MRL 380-48949/4**  
**Matrix: Water**  
**Analysis Batch: 48949**

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Tert-amyl methyl ether	0.500	0.568	J	ug/L		114	50 - 150
1,3-Dichloropropene, Total	1.00	1.62	^3+	ug/L		162	50 - 150
Tert-butyl ethyl ether	0.500	0.603	J	ug/L		121	50 - 150
tert-Butylbenzene	0.500	0.533		ug/L		107	50 - 150
Tetrachloroethene (PCE)	0.500	0.622		ug/L		124	50 - 150
Toluene	0.500	0.629		ug/L		126	50 - 150
trans-1,2-Dichloroethylene	0.500	0.634		ug/L		127	50 - 150
trans-1,3-Dichloropropene	0.500	0.476	J	ug/L		95	50 - 150
Trichloroethylene (TCE)	0.500	0.608		ug/L		122	50 - 150
Bromoethane	0.500	0.629		ug/L		126	50 - 150
Trichlorofluoromethane (Freon 11)	0.500	0.491	J	ug/L		98	50 - 150
Trichlorotrifluoroethane	0.500	0.612		ug/L		122	50 - 150
Diisopropyl ether	0.500	0.636	J	ug/L		127	50 - 150
Vinyl Chloride (VC)	0.500	0.0960	J ^3-	ug/L		19	50 - 150
Xylenes, Total	1.50	1.50		ug/L		100	50 - 150

Surrogate	MRL %Recovery	MRL Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	103		70 - 130
4-Bromofluorobenzene (Surr)	100		70 - 130
Toluene-d8 (Surr)	94		70 - 130

**Lab Sample ID: MB 380-49405/5**  
**Matrix: Water**  
**Analysis Batch: 49405**

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

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L			07/29/23 02:21	1
1,1,1-Trichloroethane	<0.50		0.50	ug/L			07/29/23 02:21	1
1,1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L			07/29/23 02:21	1
1,1,2-Trichloroethane	<0.50		0.50	ug/L			07/29/23 02:21	1
1,1-Dichloroethane	<0.50		0.50	ug/L			07/29/23 02:21	1
1,1-Dichloroethylene	<0.50		0.50	ug/L			07/29/23 02:21	1
1,1-Dichloropropene	<0.50		0.50	ug/L			07/29/23 02:21	1
1,2,3-Trichlorobenzene	<0.50		0.50	ug/L			07/29/23 02:21	1
1,2,3-Trichloropropane	<0.50		0.50	ug/L			07/29/23 02:21	1
1,2,4-Trichlorobenzene	<0.50		0.50	ug/L			07/29/23 02:21	1
1,2,4-Trimethy benzene	<0.50		0.50	ug/L			07/29/23 02:21	1
1,2-Dichloroethane	<0.50		0.50	ug/L			07/29/23 02:21	1
1,2-Dichloropropane	<0.50		0.50	ug/L			07/29/23 02:21	1
1,3,5-Trimethy benzene	<0.50		0.50	ug/L			07/29/23 02:21	1
1,3-Dichloropropane	<0.50		0.50	ug/L			07/29/23 02:21	1
2,2-Dichloropropane	<0.50		0.50	ug/L			07/29/23 02:21	1
2-Butanone (MEK)	<5.0		5.0	ug/L			07/29/23 02:21	1
4-Methyl-2-pentanone (MIBK)	<5.0		5.0	ug/L			07/29/23 02:21	1
Acetone	<500		500	ug/L			07/29/23 02:21	1
Benzene	<0.50		0.50	ug/L			07/29/23 02:21	1
Bromobenzene	<0.50		0.50	ug/L			07/29/23 02:21	1
Bromochloromethane	<0.50		0.50	ug/L			07/29/23 02:21	1

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-55362-1

## Method: 524.2 - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: MB 380-49405/5**  
**Matrix: Water**  
**Analysis Batch: 49405**

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

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Bromodichloromethane	<0.50		0.50	ug/L			07/29/23 02:21	1
Bromoform	<0.50		0.50	ug/L			07/29/23 02:21	1
Bromomethane (Methyl Bromide)	<0.50		0.50	ug/L			07/29/23 02:21	1
Carbon disulfide	<0.50		0.50	ug/L			07/29/23 02:21	1
Carbon tetrachloride	<0.50		0.50	ug/L			07/29/23 02:21	1
Chlorobenzene	<0.50		0.50	ug/L			07/29/23 02:21	1
Chlorodibromomethane	<0.50		0.50	ug/L			07/29/23 02:21	1
Chloroethane	<0.50		0.50	ug/L			07/29/23 02:21	1
Chloroform (Trichloromethane)	<0.50		0.50	ug/L			07/29/23 02:21	1
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L			07/29/23 02:21	1
cis-1,3-Dichloropropene	<0.50		0.50	ug/L			07/29/23 02:21	1
Dibromomethane	<0.50		0.50	ug/L			07/29/23 02:21	1
Dichlorodifluoromethane	<0.50		0.50	ug/L			07/29/23 02:21	1
Dichloromethane	<0.50		0.50	ug/L			07/29/23 02:21	1
Ethylbenzene	<0.50		0.50	ug/L			07/29/23 02:21	1
Hexachlorobutadiene	<0.50		0.50	ug/L			07/29/23 02:21	1
Isopropyl benzene	<0.50		0.50	ug/L			07/29/23 02:21	1
m,p-Xylenes	<0.50		0.50	ug/L			07/29/23 02:21	1
m-Dichlorobenzene (1,3-DCB)	<0.50		0.50	ug/L			07/29/23 02:21	1
Methyl-tert-butyl Ether (MTBE)	<0.50		0.50	ug/L			07/29/23 02:21	1
Naphthalene	<0.50		0.50	ug/L			07/29/23 02:21	1
n-Butylbenzene	<0.50		0.50	ug/L			07/29/23 02:21	1
N-Propylbenzene	<0.50		0.50	ug/L			07/29/23 02:21	1
o-Chlorotoluene	<0.50		0.50	ug/L			07/29/23 02:21	1
o-Dichlorobenzene (1,2-DCB)	<0.50		0.50	ug/L			07/29/23 02:21	1
o-Xylene	<0.50		0.50	ug/L			07/29/23 02:21	1
p-Chlorotoluene	<0.50		0.50	ug/L			07/29/23 02:21	1
p-Dichlorobenzene (1,4-DCB)	<0.50		0.50	ug/L			07/29/23 02:21	1
p-Isopropyltoluene	<0.50		0.50	ug/L			07/29/23 02:21	1
sec-Butylbenzene	<0.50		0.50	ug/L			07/29/23 02:21	1
Styrene	<0.50		0.50	ug/L			07/29/23 02:21	1
Tert-amyl methyl ether	<3.0		3.0	ug/L			07/29/23 02:21	1
1,3-Dichloropropene, Total	<0.50		0.50	ug/L			07/29/23 02:21	1
Tert-butyl ethyl ether	<3.0		3.0	ug/L			07/29/23 02:21	1
tert-Butylbenzene	<0.50		0.50	ug/L			07/29/23 02:21	1
Tetrachloroethene (PCE)	<0.50		0.50	ug/L			07/29/23 02:21	1
Toluene	<0.50		0.50	ug/L			07/29/23 02:21	1
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L			07/29/23 02:21	1
trans-1,3-Dichloropropene	<0.50		0.50	ug/L			07/29/23 02:21	1
Trichloroethylene (TCE)	<0.50		0.50	ug/L			07/29/23 02:21	1
Bromoethane	<0.50		0.50	ug/L			07/29/23 02:21	1
Trichlorofluoromethane (Freon 11)	<0.50		0.50	ug/L			07/29/23 02:21	1
Chloromethane (methyl chloride)	<0.50		0.50	ug/L			07/29/23 02:21	1
Trichlorotrifluoroethane	<0.50		0.50	ug/L			07/29/23 02:21	1
Diisopropyl ether	<3.0		3.0	ug/L			07/29/23 02:21	1
Vinyl Chloride (VC)	<0.30		0.30	ug/L			07/29/23 02:21	1
Xylenes, Total	0.761	B	0.50	ug/L			07/29/23 02:21	1



# QC Sample Results

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

Job ID: 380-55362-1

## Method: 524.2 - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: MB 380-49405/5**  
**Matrix: Water**  
**Analysis Batch: 49405**

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

<i>Tentatively Identified Compound</i>	<i>Est. Result</i>	<i>Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>RT</i>	<i>CAS No.</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>Tentatively Identified Compound</i>	<i>None</i>		<i>ug/L</i>			<i>N/A</i>		<i>07/29/23 02:21</i>	<i>1</i>

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<i>1,2-Dichloroethane-d4 (Surr)</i>	<i>101</i>		<i>70 - 130</i>		<i>07/29/23 02:21</i>	<i>1</i>
<i>4-Bromofluorobenzene (Surr)</i>	<i>112</i>		<i>70 - 130</i>		<i>07/29/23 02:21</i>	<i>1</i>
<i>Toluene-d8 (Surr)</i>	<i>88</i>		<i>70 - 130</i>		<i>07/29/23 02:21</i>	<i>1</i>

**Lab Sample ID: LCS 380-49405/3**  
**Matrix: Water**  
**Analysis Batch: 49405**

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

<i>Analyte</i>	<i>Spike Added</i>	<i>LCS Result</i>	<i>LCS Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>
1,1,1,2-Tetrachloroethane	5.00	5.52		ug/L		110	70 - 130
1,1,1-Trichloroethane	5.00	5.42		ug/L		108	70 - 130
1,1,2,2-Tetrachloroethane	5.00	5.79		ug/L		116	70 - 130
1,1,2-Trichloroethane	5.00	4.40		ug/L		88	70 - 130
1,1-Dichloroethane	5.00	5.60		ug/L		112	70 - 130
1,1-Dichlorethylene	5.00	5.62		ug/L		112	70 - 130
1,1-Dichloropropene	5.00	5.26		ug/L		105	70 - 130
1,2,3-Trichlorobenzene	5.00	6.22		ug/L		124	70 - 130
1,2,3-Trichloropropane	5.00	5.98		ug/L		120	70 - 130
1,2,4-Trichlorobenzene	5.00	5.61		ug/L		112	70 - 130
1,2,4-Trimethy benzene	5.00	7.42	*+	ug/L		148	70 - 130
1,2-Dichloroethane	5.00	5.68		ug/L		114	70 - 130
1,2-Dichloropropane	5.00	5.45		ug/L		109	70 - 130
1,3,5-Trimethy benzene	5.00	7.33	*+	ug/L		147	70 - 130
1,3-Dichloropropane	5.00	4.46		ug/L		89	70 - 130
2,2-Dichloropropane	5.00	5.10		ug/L		102	70 - 130
2-Butanone (MEK)	50.0	49.8		ug/L		100	70 - 130
4-Methyl-2-pentanone (MIBK)	50.0	43.9		ug/L		88	70 - 130
Acetone	50.0	48.4	J	ug/L		97	70 - 130
Benzene	5.00	5.81		ug/L		116	70 - 130
Bromobenzene	5.00	6.51		ug/L		130	70 - 130
Bromochloromethane	5.00	5.70		ug/L		114	70 - 130
Bromodichloromethane	5.00	5.57		ug/L		111	70 - 130
Bromoform	5.00	6.07		ug/L		121	70 - 130
Bromomethane (Methyl Bromide)	5.00	6.22		ug/L		124	70 - 130
Carbon disulfide	5.00	5.52		ug/L		110	70 - 130
Carbon tetrachloride	5.00	5.61		ug/L		112	70 - 130
Chlorobenzene	5.00	5.59		ug/L		112	70 - 130
Chlorodibromomethane	5.00	5.11		ug/L		102	70 - 130
cis-1,3-Dichloropropene	5.00	5.17		ug/L		103	70 - 130
Dichloromethane	5.00	5.62		ug/L		112	70 - 130
Ethylbenzene	5.00	5.06		ug/L		101	70 - 130
Hexachlorobutadiene	5.00	6.25		ug/L		125	70 - 130
Isopropy benzene	5.00	6.74	*+	ug/L		135	70 - 130
m,p-Xylenes	10.0	10.5		ug/L		105	70 - 130
m-Dichlorobenzene (1,3-DCB)	5.00	7.32	*+	ug/L		146	70 - 130

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# QC Sample Results

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

Job ID: 380-55362-1

## Method: 524.2 - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: LCS 380-49405/3**  
**Matrix: Water**  
**Analysis Batch: 49405**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Methyl-tert-butyl Ether (MTBE)	5.00	4.48		ug/L		90	70 - 130
Naphthalene	5.00	5.06		ug/L		101	70 - 130
n-Butylbenzene	5.00	6.61	*+	ug/L		132	70 - 130
N-Propylbenzene	5.00	5.30		ug/L		106	70 - 130
o-Chlorotoluene	5.00	7.42	*+	ug/L		148	70 - 130
o-Dichlorobenzene (1,2-DCB)	5.00	6.06		ug/L		121	70 - 130
o-Xylene	5.00	5.16		ug/L		103	70 - 130
p-Chlorotoluene	5.00	5.96		ug/L		119	70 - 130
p-Dichlorobenzene (1,4-DCB)	5.00	7.59	*+	ug/L		152	70 - 130
p-Isopropyltoluene	5.00	7.23	*+	ug/L		145	70 - 130
sec-Butylbenzene	5.00	7.14	*+	ug/L		143	70 - 130
Styrene	5.00	5.24		ug/L		105	70 - 130
Tert-amyl methyl ether	5.00	4.96		ug/L		99	70 - 130
1,3-Dichloropropene, Total	10.0	9.70		ug/L		97	70 - 130
Tert-butyl ethyl ether	5.00	4.78		ug/L		96	70 - 130
tert-Butylbenzene	5.00	7.12	*+	ug/L		142	70 - 130
Tetrachloroethene (PCE)	5.00	5.07		ug/L		101	70 - 130
Toluene	5.00	4.75		ug/L		95	70 - 130
trans-1,2-Dichloroethylene	5.00	5.79		ug/L		116	70 - 130
trans-1,3-Dichloropropene	5.00	4.53		ug/L		91	70 - 130
Trichloroethylene (TCE)	5.00	5.79		ug/L		116	70 - 130
Bromoethane	5.00	5.51		ug/L		110	70 - 130
Trichlorofluoromethane (Freon 11)	5.00	6.37		ug/L		127	70 - 130
Trichlorotrifluoroethane	5.00	6.07		ug/L		121	70 - 130
Diisopropyl ether	5.00	4.76		ug/L		95	70 - 130
Vinyl Chloride (VC)	5.00	6.16		ug/L		123	70 - 130
Xylenes, Total	15.0	15.7		ug/L		105	70 - 130

**LCS LCS**

Surrogate	%Recovery	Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	100		70 - 130
4-Bromofluorobenzene (Surr)	111		70 - 130
Toluene-d8 (Surr)	93		70 - 130

**Lab Sample ID: LCSD 380-49405/4**  
**Matrix: Water**  
**Analysis Batch: 49405**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	5.00	5.29		ug/L		106	70 - 130	4	20
1,1,1-Trichloroethane	5.00	5.18		ug/L		104	70 - 130	5	20
1,1,1,2-Tetrachloroethane	5.00	5.92		ug/L		118	70 - 130	2	20
1,1,2-Trichloroethane	5.00	4.29		ug/L		86	70 - 130	3	20
1,1-Dichloroethane	5.00	5.53		ug/L		111	70 - 130	1	20
1,1-Dichloroethylene	5.00	5.36		ug/L		107	70 - 130	5	20
1,1-Dichloropropene	5.00	5.25		ug/L		105	70 - 130	0	20
1,2,3-Trichlorobenzene	5.00	6.19		ug/L		124	70 - 130	0	20
1,2,3-Trichloropropane	5.00	5.96		ug/L		119	70 - 130	0	20
1,2,4-Trichlorobenzene	5.00	5.58		ug/L		112	70 - 130	1	20

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# QC Sample Results

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

Job ID: 380-55362-1

## Method: 524.2 - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: LCSD 380-49405/4**  
**Matrix: Water**  
**Analysis Batch: 49405**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,2,4-Trimethy benzene	5.00	7.47	*+	ug/L		149	70 - 130	1	20
1,2-Dichloroethane	5.00	5.51		ug/L		110	70 - 130	3	20
1,2-Dichloropropane	5.00	5.34		ug/L		107	70 - 130	2	20
1,3,5-Trimethy benzene	5.00	7.34	*+	ug/L		147	70 - 130	0	20
1,3-Dichloropropane	5.00	4.36		ug/L		87	70 - 130	2	20
2,2-Dichloropropane	5.00	4.70		ug/L		94	70 - 130	8	20
2-Butanone (MEK)	50.0	49.4		ug/L		99	70 - 130	1	20
4-Methyl-2-pentanone (MIBK)	50.0	42.4		ug/L		85	70 - 130	3	20
Acetone	50.0	50.1	J	ug/L		100	70 - 130	3	20
Benzene	5.00	5.67		ug/L		113	70 - 130	2	20
Bromobenzene	5.00	6.58	*+	ug/L		132	70 - 130	1	20
Bromochloromethane	5.00	5.64		ug/L		113	70 - 130	1	20
Bromodichloromethane	5.00	5.35		ug/L		107	70 - 130	4	20
Bromoform	5.00	6.01		ug/L		120	70 - 130	1	20
Bromomethane (Methyl Bromide)	5.00	6.19		ug/L		124	70 - 130	0	20
Carbon disulfide	5.00	5.38		ug/L		108	70 - 130	3	20
Carbon tetrachloride	5.00	5.49		ug/L		110	70 - 130	2	20
Chlorobenzene	5.00	5.47		ug/L		109	70 - 130	2	20
Chlorodibromomethane	5.00	4.51		ug/L		90	70 - 130	12	20
cis-1,3-Dichloropropene	5.00	5.03		ug/L		101	70 - 130	3	20
Dichloromethane	5.00	5.52		ug/L		110	70 - 130	2	20
Ethylbenzene	5.00	4.89		ug/L		98	70 - 130	3	20
Hexachlorobutadiene	5.00	5.95		ug/L		119	70 - 130	5	20
Isopropy benzene	5.00	6.73	*+	ug/L		135	70 - 130	0	20
m,p-Xylenes	10.0	10.2		ug/L		102	70 - 130	3	20
m-Dichlorobenzene (1,3-DCB)	5.00	7.47	*+	ug/L		149	70 - 130	2	20
Methyl-tert-butyl Ether (MTBE)	5.00	4.40		ug/L		88	70 - 130	2	20
Naphthalene	5.00	4.90		ug/L		98	70 - 130	3	20
n-Butylbenzene	5.00	6.54	*+	ug/L		131	70 - 130	1	20
N-Propylbenzene	5.00	5.08		ug/L		102	70 - 130	4	20
o-Chlorotoluene	5.00	7.74	*+	ug/L		155	70 - 130	4	20
o-Dichlorobenzene (1,2-DCB)	5.00	6.00		ug/L		120	70 - 130	1	20
o-Xylene	5.00	4.91		ug/L		98	70 - 130	5	20
p-Chlorotoluene	5.00	5.65		ug/L		113	70 - 130	5	20
p-Dichlorobenzene (1,4-DCB)	5.00	7.69	*+	ug/L		154	70 - 130	1	20
p-Isopropyltoluene	5.00	7.29	*+	ug/L		146	70 - 130	1	20
sec-Butylbenzene	5.00	7.27	*+	ug/L		145	70 - 130	2	20
Styrene	5.00	5.06		ug/L		101	70 - 130	4	20
Tert-amyl methyl ether	5.00	4.76		ug/L		95	70 - 130	4	20
1,3-Dichloropropene, Total	10.0	9.43		ug/L		94	70 - 130	3	20
Tert-butyl ethyl ether	5.00	4.75		ug/L		95	70 - 130	1	20
tert-Butylbenzene	5.00	7.25	*+	ug/L		145	70 - 130	2	20
Tetrachloroethene (PCE)	5.00	5.00		ug/L		100	70 - 130	1	20
Toluene	5.00	4.61		ug/L		92	70 - 130	3	20
trans-1,2-Dichloroethylene	5.00	5.70		ug/L		114	70 - 130	2	20
trans-1,3-Dichloropropene	5.00	4.40		ug/L		88	70 - 130	3	20
Trichloroethylene (TCE)	5.00	5.59		ug/L		112	70 - 130	4	20
Bromoethane	5.00	5.26		ug/L		105	70 - 130	5	20

# QC Sample Results

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

Job ID: 380-55362-1

## Method: 524.2 - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: LCSD 380-49405/4**  
**Matrix: Water**  
**Analysis Batch: 49405**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Trichlorofluoromethane (Freon 11)	5.00	6.08		ug/L		122	70 - 130	5	20
Trichlorotrifluoroethane	5.00	6.13		ug/L		123	70 - 130	1	20
Diisopropyl ether	5.00	4.74		ug/L		95	70 - 130	0	20
Vinyl Chloride (VC)	5.00	6.16		ug/L		123	70 - 130	0	20
Xylenes, Total	15.0	15.1		ug/L		101	70 - 130	4	20

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	101		70 - 130
4-Bromofluorobenzene (Surr)	113		70 - 130
Toluene-d8 (Surr)	93		70 - 130

**Lab Sample ID: MB 380-49627/15**  
**Matrix: Water**  
**Analysis Batch: 49627**

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

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<0.50		0.50	ug/L			07/31/23 20:34	1
1,1,1-Trichloroethane	<0.50		0.50	ug/L			07/31/23 20:34	1
1,1,2,2-Tetrachloroethane	<0.50		0.50	ug/L			07/31/23 20:34	1
1,1,2-Trichloroethane	<0.50		0.50	ug/L			07/31/23 20:34	1
1,1-Dichloroethane	<0.50		0.50	ug/L			07/31/23 20:34	1
1,1-Dichloroethylene	<0.50		0.50	ug/L			07/31/23 20:34	1
1,1-Dichloropropene	<0.50		0.50	ug/L			07/31/23 20:34	1
1,2,3-Trichlorobenzene	<0.50		0.50	ug/L			07/31/23 20:34	1
1,2,3-Trichloropropane	<0.50		0.50	ug/L			07/31/23 20:34	1
1,2,4-Trichlorobenzene	<0.50		0.50	ug/L			07/31/23 20:34	1
1,2,4-Trimethy benzene	<0.50		0.50	ug/L			07/31/23 20:34	1
1,2-Dichloroethane	<0.50		0.50	ug/L			07/31/23 20:34	1
1,2-Dichloropropane	<0.50		0.50	ug/L			07/31/23 20:34	1
1,3,5-Trimethy benzene	<0.50		0.50	ug/L			07/31/23 20:34	1
1,3-Dichloropropane	<0.50		0.50	ug/L			07/31/23 20:34	1
2,2-Dichloropropane	<0.50		0.50	ug/L			07/31/23 20:34	1
2-Butanone (MEK)	<5.0		5.0	ug/L			07/31/23 20:34	1
4-Methyl-2-pentanone (MIBK)	<5.0		5.0	ug/L			07/31/23 20:34	1
Acetone	<500		500	ug/L			07/31/23 20:34	1
Benzene	<0.50		0.50	ug/L			07/31/23 20:34	1
Bromobenzene	<0.50		0.50	ug/L			07/31/23 20:34	1
Bromochloromethane	<0.50		0.50	ug/L			07/31/23 20:34	1
Bromodichloromethane	<0.50		0.50	ug/L			07/31/23 20:34	1
Bromoform	<0.50		0.50	ug/L			07/31/23 20:34	1
Bromomethane (Methyl Bromide)	<0.50		0.50	ug/L			07/31/23 20:34	1
Carbon disulfide	<0.50		0.50	ug/L			07/31/23 20:34	1
Carbon tetrachloride	<0.50		0.50	ug/L			07/31/23 20:34	1
Chlorobenzene	<0.50		0.50	ug/L			07/31/23 20:34	1
Chlorodibromomethane	<0.50		0.50	ug/L			07/31/23 20:34	1
Chloroethane	<0.50		0.50	ug/L			07/31/23 20:34	1
Chloroform (Trichloromethane)	<0.50		0.50	ug/L			07/31/23 20:34	1
cis-1,2-Dichloroethylene	<0.50		0.50	ug/L			07/31/23 20:34	1

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# QC Sample Results

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

Job ID: 380-55362-1

## Method: 524.2 - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: MB 380-49627/15**  
**Matrix: Water**  
**Analysis Batch: 49627**

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

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,3-Dichloropropene	<0.50		0.50	ug/L			07/31/23 20:34	1
Dibromomethane	<0.50		0.50	ug/L			07/31/23 20:34	1
Dichlorodifluoromethane	<0.50		0.50	ug/L			07/31/23 20:34	1
Dichloromethane	<0.50		0.50	ug/L			07/31/23 20:34	1
Ethylbenzene	<0.50		0.50	ug/L			07/31/23 20:34	1
Hexachlorobutadiene	<0.50		0.50	ug/L			07/31/23 20:34	1
Isopropyl benzene	<0.50		0.50	ug/L			07/31/23 20:34	1
m,p-Xylenes	<0.50		0.50	ug/L			07/31/23 20:34	1
m-Dichlorobenzene (1,3-DCB)	<0.50		0.50	ug/L			07/31/23 20:34	1
Methyl-tert-butyl Ether (MTBE)	<0.50		0.50	ug/L			07/31/23 20:34	1
Naphthalene	<0.50		0.50	ug/L			07/31/23 20:34	1
n-Butylbenzene	<0.50		0.50	ug/L			07/31/23 20:34	1
N-Propylbenzene	<0.50		0.50	ug/L			07/31/23 20:34	1
o-Chlorotoluene	<0.50		0.50	ug/L			07/31/23 20:34	1
o-Dichlorobenzene (1,2-DCB)	<0.50		0.50	ug/L			07/31/23 20:34	1
o-Xylene	<0.50		0.50	ug/L			07/31/23 20:34	1
p-Chlorotoluene	<0.50		0.50	ug/L			07/31/23 20:34	1
p-Dichlorobenzene (1,4-DCB)	<0.50		0.50	ug/L			07/31/23 20:34	1
p-Isopropyltoluene	<0.50		0.50	ug/L			07/31/23 20:34	1
sec-Butylbenzene	<0.50		0.50	ug/L			07/31/23 20:34	1
Styrene	<0.50		0.50	ug/L			07/31/23 20:34	1
Tert-amyl methyl ether	<3.0		3.0	ug/L			07/31/23 20:34	1
1,3-Dichloropropene, Total	<0.50		0.50	ug/L			07/31/23 20:34	1
Tert-butyl ethyl ether	<3.0		3.0	ug/L			07/31/23 20:34	1
tert-Butylbenzene	<0.50		0.50	ug/L			07/31/23 20:34	1
Tetrachloroethene (PCE)	<0.50		0.50	ug/L			07/31/23 20:34	1
Toluene	<0.50		0.50	ug/L			07/31/23 20:34	1
trans-1,2-Dichloroethylene	<0.50		0.50	ug/L			07/31/23 20:34	1
trans-1,3-Dichloropropene	<0.50		0.50	ug/L			07/31/23 20:34	1
Trichloroethylene (TCE)	<0.50		0.50	ug/L			07/31/23 20:34	1
Bromoethane	<0.50		0.50	ug/L			07/31/23 20:34	1
Trichlorofluoromethane (Freon 11)	<0.50		0.50	ug/L			07/31/23 20:34	1
Chloromethane (methyl chloride)	<0.50		0.50	ug/L			07/31/23 20:34	1
Trichlorotrifluoroethane	<0.50		0.50	ug/L			07/31/23 20:34	1
Diisopropyl ether	<3.0		3.0	ug/L			07/31/23 20:34	1
Vinyl Chloride (VC)	<0.30		0.30	ug/L			07/31/23 20:34	1
Xylenes, Total	<0.50		0.50	ug/L			07/31/23 20:34	1

<i>Tentatively Identified Compound</i>	MB Est. Result	MB Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
<i>Tentatively Identified Compound</i>	None		ug/L			N/A		07/31/23 20:34	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		70 - 130		07/31/23 20:34	1
4-Bromofluorobenzene (Surr)	100		70 - 130		07/31/23 20:34	1
Toluene-d8 (Surr)	93		70 - 130		07/31/23 20:34	1

# QC Sample Results

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

Job ID: 380-55362-1

## Method: 524.2 - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: LCS 380-49627/11**  
**Matrix: Water**  
**Analysis Batch: 49627**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1,2-Tetrachloroethane	5.00	5.23		ug/L		105	70 - 130
1,1,1-Trichloroethane	5.00	5.05		ug/L		101	70 - 130
1,1,2,2-Tetrachloroethane	5.00	4.60		ug/L		92	70 - 130
1,1,2-Trichloroethane	5.00	5.64		ug/L		113	70 - 130
1,1-Dichloroethane	5.00	5.03		ug/L		101	70 - 130
1,1-Dichlorethylene	5.00	4.87		ug/L		97	70 - 130
1,1-Dichloropropene	5.00	4.58		ug/L		92	70 - 130
1,2,3-Trichlorobenzene	5.00	5.68		ug/L		114	70 - 130
1,2,3-Trichloropropane	5.00	4.86		ug/L		97	70 - 130
1,2,4-Trichlorobenzene	5.00	5.33		ug/L		107	70 - 130
1,2,4-Trimethy benzene	5.00	5.56		ug/L		111	70 - 130
1,2-Dichloroethane	5.00	5.00		ug/L		100	70 - 130
1,2-Dichloropropane	5.00	5.10		ug/L		102	70 - 130
1,3,5-Trimethy benzene	5.00	5.51		ug/L		110	70 - 130
1,3-Dichloropropane	5.00	5.28		ug/L		106	70 - 130
2,2-Dichloropropane	5.00	4.86		ug/L		97	70 - 130
2-Butanone (MEK)	50.0	51.5		ug/L		103	70 - 130
4-Methyl-2-pentanone (MIBK)	50.0	53.2		ug/L		106	70 - 130
Acetone	50.0	47.5	J	ug/L		95	70 - 130
Benzene	5.00	4.97		ug/L		99	70 - 130
Bromobenzene	5.00	5.06		ug/L		101	70 - 130
Bromochloromethane	5.00	4.91		ug/L		98	70 - 130
Bromodichloromethane	5.00	4.98		ug/L		100	70 - 130
Bromoform	5.00	4.82		ug/L		96	70 - 130
Bromomethane (Methyl Bromide)	5.00	4.94		ug/L		99	70 - 130
Carbon disulfide	5.00	4.87		ug/L		97	70 - 130
Carbon tetrachloride	5.00	4.69		ug/L		94	70 - 130
Chlorobenzene	5.00	5.29		ug/L		106	70 - 130
Chlorodibromomethane	5.00	5.20		ug/L		104	70 - 130
cis-1,3-Dichloropropene	5.00	5.08		ug/L		102	70 - 130
Dichloromethane	5.00	4.94		ug/L		99	70 - 130
Ethylbenzene	5.00	5.57		ug/L		111	70 - 130
Hexachlorobutadiene	5.00	5.30		ug/L		106	70 - 130
Isopropyl benzene	5.00	5.12		ug/L		102	70 - 130
m,p-Xylenes	10.0	10.1		ug/L		101	70 - 130
m-Dichlorobenzene (1,3-DCB)	5.00	5.42		ug/L		108	70 - 130
Methyl-tert-butyl Ether (MTBE)	5.00	5.12		ug/L		102	70 - 130
Naphthalene	5.00	4.73		ug/L		95	70 - 130
n-Butylbenzene	5.00	6.28		ug/L		126	70 - 130
N-Propylbenzene	5.00	5.66		ug/L		113	70 - 130
o-Chlorotoluene	5.00	5.66		ug/L		113	70 - 130
o-Dichlorobenzene (1,2-DCB)	5.00	5.47		ug/L		109	70 - 130
o-Xylene	5.00	5.39		ug/L		108	70 - 130
p-Chlorotoluene	5.00	5.67		ug/L		113	70 - 130
p-Dichlorobenzene (1,4-DCB)	5.00	5.28		ug/L		106	70 - 130
p-Isopropyltoluene	5.00	5.43		ug/L		109	70 - 130
sec-Butylbenzene	5.00	5.36		ug/L		107	70 - 130
Styrene	5.00	4.95		ug/L		99	70 - 130

# QC Sample Results

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

Job ID: 380-55362-1

## Method: 524.2 - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: LCS 380-49627/11**  
**Matrix: Water**  
**Analysis Batch: 49627**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Tert-amyl methyl ether	5.00	5.02		ug/L		100	70 - 130
1,3-Dichloropropene, Total	10.0	11.0		ug/L		110	70 - 130
Tert-butyl ethyl ether	5.00	5.13		ug/L		103	70 - 130
tert-Butylbenzene	5.00	5.53		ug/L		111	70 - 130
Tetrachloroethene (PCE)	5.00	5.10		ug/L		102	70 - 130
Toluene	5.00	4.90		ug/L		98	70 - 130
trans-1,2-Dichloroethylene	5.00	4.83		ug/L		97	70 - 130
trans-1,3-Dichloropropene	5.00	5.94		ug/L		119	70 - 130
Trichloroethylene (TCE)	5.00	4.87		ug/L		97	70 - 130
Bromoethane	5.00	4.74		ug/L		95	70 - 130
Trichlorofluoromethane (Freon 11)	5.00	5.00		ug/L		100	70 - 130
Trichlorotrifluoroethane	5.00	5.20		ug/L		104	70 - 130
Diisopropyl ether	5.00	5.37		ug/L		107	70 - 130
Vinyl Chloride (VC)	5.00	5.20		ug/L		104	70 - 130
Xylenes, Total	15.0	15.5		ug/L		103	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	101		70 - 130
4-Bromofluorobenzene (Surr)	96		70 - 130
Toluene-d8 (Surr)	101		70 - 130

**Lab Sample ID: LCSD 380-49627/12**  
**Matrix: Water**  
**Analysis Batch: 49627**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	5.00	4.71		ug/L		94	70 - 130	10	20
1,1,1-Trichloroethane	5.00	4.55		ug/L		91	70 - 130	11	20
1,1,1,2,2-Tetrachloroethane	5.00	4.16		ug/L		83	70 - 130	10	20
1,1,2-Trichloroethane	5.00	4.42	*1	ug/L		88	70 - 130	24	20
1,1-Dichloroethane	5.00	4.76		ug/L		95	70 - 130	5	20
1,1-Dichloroethylene	5.00	4.62		ug/L		92	70 - 130	5	20
1,1-Dichloropropene	5.00	4.33		ug/L		87	70 - 130	6	20
1,2,3-Trichlorobenzene	5.00	5.02		ug/L		100	70 - 130	12	20
1,2,3-Trichloropropane	5.00	4.43		ug/L		89	70 - 130	9	20
1,2,4-Trichlorobenzene	5.00	4.65		ug/L		93	70 - 130	14	20
1,2,4-Trimethy benzene	5.00	5.19		ug/L		104	70 - 130	7	20
1,2-Dichloroethane	5.00	4.63		ug/L		93	70 - 130	8	20
1,2-Dichloropropane	5.00	4.77		ug/L		95	70 - 130	7	20
1,3,5-Trimethy benzene	5.00	5.11		ug/L		102	70 - 130	8	20
1,3-Dichloropropane	5.00	4.32		ug/L		86	70 - 130	20	20
2,2-Dichloropropane	5.00	4.46		ug/L		89	70 - 130	9	20
2-Butanone (MEK)	50.0	46.1		ug/L		92	70 - 130	11	20
4-Methyl-2-pentanone (MIBK)	50.0	48.6		ug/L		97	70 - 130	9	20
Acetone	50.0	44.7	J	ug/L		89	70 - 130	6	20
Benzene	5.00	4.63		ug/L		93	70 - 130	7	20
Bromobenzene	5.00	4.64		ug/L		93	70 - 130	9	20
Bromochloromethane	5.00	4.55		ug/L		91	70 - 130	8	20

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# QC Sample Results

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

Job ID: 380-55362-1

## Method: 524.2 - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: LCSD 380-49627/12**  
**Matrix: Water**  
**Analysis Batch: 49627**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Bromodichloromethane	5.00	4.59		ug/L		92	70 - 130	8	20
Bromoform	5.00	4.29		ug/L		86	70 - 130	12	20
Bromomethane (Methyl Bromide)	5.00	4.78		ug/L		96	70 - 130	3	20
Carbon disulfide	5.00	4.58		ug/L		92	70 - 130	6	20
Carbon tetrachloride	5.00	4.42		ug/L		88	70 - 130	6	20
Chlorobenzene	5.00	4.94		ug/L		99	70 - 130	7	20
Chlorodibromomethane	5.00	4.53		ug/L		91	70 - 130	14	20
cis-1,3-Dichloropropene	5.00	4.68		ug/L		94	70 - 130	8	20
Dichloromethane	5.00	4.63		ug/L		93	70 - 130	7	20
Ethylbenzene	5.00	5.24		ug/L		105	70 - 130	6	20
Hexachlorobutadiene	5.00	4.66		ug/L		93	70 - 130	13	20
Isopropyl benzene	5.00	4.80		ug/L		96	70 - 130	7	20
m,p-Xylenes	10.0	9.39		ug/L		94	70 - 130	8	20
m-Dichlorobenzene (1,3-DCB)	5.00	5.00		ug/L		100	70 - 130	8	20
Methyl-tert-butyl Ether (MTBE)	5.00	4.76		ug/L		95	70 - 130	7	20
Naphthalene	5.00	4.12		ug/L		82	70 - 130	14	20
n-Butylbenzene	5.00	5.73		ug/L		115	70 - 130	9	20
N-Propylbenzene	5.00	5.29		ug/L		106	70 - 130	7	20
o-Chlorotoluene	5.00	5.12		ug/L		102	70 - 130	10	20
o-Dichlorobenzene (1,2-DCB)	5.00	4.83		ug/L		97	70 - 130	12	20
o-Xylene	5.00	5.16		ug/L		103	70 - 130	4	20
p-Chlorotoluene	5.00	5.16		ug/L		103	70 - 130	10	20
p-Dichlorobenzene (1,4-DCB)	5.00	4.90		ug/L		98	70 - 130	7	20
p-Isopropyltoluene	5.00	5.06		ug/L		101	70 - 130	7	20
sec-Butylbenzene	5.00	4.98		ug/L		100	70 - 130	7	20
Styrene	5.00	4.57		ug/L		91	70 - 130	8	20
Tert-amyl methyl ether	5.00	4.68		ug/L		94	70 - 130	7	20
1,3-Dichloropropene, Total	10.0	9.60		ug/L		96	70 - 130	14	20
Tert-butyl ethyl ether	5.00	4.87		ug/L		97	70 - 130	5	20
tert-Butylbenzene	5.00	5.19		ug/L		104	70 - 130	6	20
Tetrachloroethene (PCE)	5.00	4.47		ug/L		89	70 - 130	13	20
Toluene	5.00	4.54		ug/L		91	70 - 130	7	20
trans-1,2-Dichloroethylene	5.00	4.56		ug/L		91	70 - 130	6	20
trans-1,3-Dichloropropene	5.00	4.92		ug/L		98	70 - 130	19	20
Trichloroethylene (TCE)	5.00	4.60		ug/L		92	70 - 130	6	20
Bromoethane	5.00	4.50		ug/L		90	70 - 130	5	20
Trichlorofluoromethane (Freon 11)	5.00	4.57		ug/L		91	70 - 130	9	20
Trichlorotrifluoroethane	5.00	4.68		ug/L		94	70 - 130	11	20
Diisopropyl ether	5.00	5.03		ug/L		101	70 - 130	7	20
Vinyl Chloride (VC)	5.00	4.75		ug/L		95	70 - 130	9	20
Xylenes, Total	15.0	14.5		ug/L		97	70 - 130	6	20

Surrogate	LCSD %Recovery	LCSD Qualifier	LCSD Limits
1,2-Dichloroethane-d4 (Surr)	99		70 - 130
4-Bromofluorobenzene (Surr)	100		70 - 130
Toluene-d8 (Surr)	102		70 - 130



# QC Sample Results

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

Job ID: 380-55362-1

## Method: 524.2 - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: MRL 380-49627/13**

**Matrix: Water**

**Analysis Batch: 49627**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
m,p-Xylenes	0.500	0.506		ug/L		101	50 - 150
Vinyl Chloride (VC)	0.250	0.324		ug/L		130	50 - 150

Surrogate	MRL %Recovery	MRL Qualifier	MRL Limits
1,2-Dichloroethane-d4 (Surr)	102		70 - 130
4-Bromofluorobenzene (Surr)	102		70 - 130
Toluene-d8 (Surr)	95		70 - 130

**Lab Sample ID: MRL 380-49627/14**

**Matrix: Water**

**Analysis Batch: 49627**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
1,1,1,2-Tetrachloroethane	0.500	0.490	J	ug/L		98	50 - 150
1,1,1-Trichloroethane	0.500	0.488	J	ug/L		98	50 - 150
1,1,2,2-Tetrachloroethane	0.500	0.590		ug/L		118	50 - 150
1,1,2-Trichloroethane	0.500	0.475	J	ug/L		95	50 - 150
1,1-Dichloroethane	0.500	0.520		ug/L		104	50 - 150
1,1-Dichlorethylene	0.500	0.599		ug/L		120	50 - 150
1,1-Dichloropropene	0.500	0.507		ug/L		101	50 - 150
1,2,3-Trichlorobenzene	0.500	0.507		ug/L		101	50 - 150
1,2,3-Trichloropropane	0.500	0.573		ug/L		115	50 - 150
1,2,4-Trichlorobenzene	0.500	0.500		ug/L		100	50 - 150
1,2,4-Trimethy benzene	0.500	0.349	J	ug/L		70	50 - 150
1,2-Dichloroethane	0.500	0.546		ug/L		109	50 - 150
1,2-Dichloropropane	0.500	0.489	J	ug/L		98	50 - 150
1,3,5-Trimethy benzene	0.500	0.358	J	ug/L		72	50 - 150
1,3-Dichloropropane	0.500	0.527		ug/L		105	50 - 150
2,2-Dichloropropane	0.500	0.467	J	ug/L		93	50 - 150
2-Butanone (MEK)	5.00	5.05		ug/L		101	50 - 150
4-Methyl-2-pentanone (MIBK)	5.00	4.79	J	ug/L		96	50 - 150
Acetone	5.00	4.28	J	ug/L		86	50 - 150
Benzene	0.500	0.532		ug/L		106	50 - 150
Bromobenzene	0.500	0.524		ug/L		105	50 - 150
Bromochloromethane	0.500	0.485	J	ug/L		97	50 - 150
Bromodichloromethane	0.500	0.482	J	ug/L		96	50 - 150
Bromoform	0.500	0.452	J	ug/L		90	50 - 150
Bromomethane (Methyl Bromide)	0.500	0.605		ug/L		121	50 - 150
Carbon disulfide	0.500	0.479	J	ug/L		96	50 - 150
Carbon tetrachloride	0.500	0.502		ug/L		100	50 - 150
Chlorobenzene	0.500	0.433	J	ug/L		87	50 - 150
Chlorodibromomethane	0.500	0.448	J	ug/L		90	50 - 150
cis-1,3-Dichloropropene	0.500	0.415	J	ug/L		83	50 - 150
Dichloromethane	0.500	0.536		ug/L		107	50 - 150
Ethylbenzene	0.500	0.353	J	ug/L		71	50 - 150
Hexachlorobutadiene	0.500	0.553		ug/L		111	50 - 150
Isopropy benzene	0.500	0.390	J	ug/L		78	50 - 150
m,p-Xylenes	1.00	0.755		ug/L		75	50 - 150

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# QC Sample Results

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

Job ID: 380-55362-1

## Method: 524.2 - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: MRL 380-49627/14**  
**Matrix: Water**  
**Analysis Batch: 49627**

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
m-Dichlorobenzene (1,3-DCB)	0.500	0.562		ug/L		112	50 - 150
Methyl-tert-butyl Ether (MTBE)	0.500	0.517		ug/L		103	50 - 150
Naphthalene	0.500	0.638		ug/L		128	50 - 150
n-Butylbenzene	0.500	0.477	J	ug/L		95	50 - 150
N-Propylbenzene	0.500	0.350	J	ug/L		70	50 - 150
o-Chlorotoluene	0.500	0.478	J	ug/L		96	50 - 150
o-Dichlorobenzene (1,2-DCB)	0.500	0.611		ug/L		122	50 - 150
o-Xylene	0.500	0.334	J	ug/L		67	50 - 150
p-Chlorotoluene	0.500	0.376	J	ug/L		75	50 - 150
p-Dichlorobenzene (1,4-DCB)	0.500	0.526		ug/L		105	50 - 150
p-Isopropyltoluene	0.500	0.394	J	ug/L		79	50 - 150
sec-Butylbenzene	0.500	0.388	J	ug/L		78	50 - 150
Styrene	0.500	0.489	J	ug/L		98	50 - 150
Tert-amyl methyl ether	0.500	0.518	J	ug/L		104	50 - 150
1,3-Dichloropropene, Total	1.00	0.839		ug/L		84	50 - 150
Tert-butyl ethyl ether	0.500	0.510	J	ug/L		102	50 - 150
tert-Butylbenzene	0.500	0.393	J	ug/L		79	50 - 150
Tetrachloroethene (PCE)	0.500	0.522		ug/L		104	50 - 150
Toluene	0.500	0.584		ug/L		117	50 - 150
trans-1,2-Dichloroethylene	0.500	0.510		ug/L		102	50 - 150
trans-1,3-Dichloropropene	0.500	0.424	J	ug/L		85	50 - 150
Trichloroethylene (TCE)	0.500	0.517		ug/L		103	50 - 150
Bromoethane	0.500	0.550		ug/L		110	50 - 150
Trichlorofluoromethane (Freon 11)	0.500	0.601		ug/L		120	50 - 150
Trichlorotrifluoroethane	0.500	0.534		ug/L		107	50 - 150
Diisopropyl ether	0.500	0.536	J	ug/L		107	50 - 150
Vinyl Chloride (VC)	0.500	0.539		ug/L		108	50 - 150
Xylenes, Total	1.50	1.09		ug/L		73	50 - 150

Surrogate	MRL %Recovery	MRL Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	104		70 - 130
4-Bromofluorobenzene (Surr)	100		70 - 130
Toluene-d8 (Surr)	95		70 - 130

## Method: 524.2 - Volatile Organic Compounds (GC/MS SIM)

**Lab Sample ID: MB 380-48215/5**  
**Matrix: Water**  
**Analysis Batch: 48215**

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

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Tertiary Butyl Alcohol (TBA)	<2.0		2.0	ug/L			07/20/23 16:38	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	97		70 - 130		07/20/23 16:38	1
4-Bromofluorobenzene (Surr)	92		70 - 130		07/20/23 16:38	1
1,2-Dichloroethane-d4 (Surr)	100		70 - 130		07/20/23 16:38	1

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# QC Sample Results

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

Job ID: 380-55362-1

## Method: 524.2 - Volatile Organic Compounds (GC/MS SIM) (Continued)

**Lab Sample ID: LCS 380-48215/2**  
**Matrix: Water**  
**Analysis Batch: 48215**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Tertiary Butyl Alcohol (TBA)	5.00	6.01		ug/L		120	70 - 130
<b>LCS LCS</b>							
Surrogate	%Recovery	Qualifier	Limits				
Toluene-d8 (Surr)	99		70 - 130				
4-Bromofluorobenzene (Surr)	99		70 - 130				
1,2-Dichloroethane-d4 (Surr)	102		70 - 130				

**Lab Sample ID: LCSD 380-48215/3**  
**Matrix: Water**  
**Analysis Batch: 48215**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Tertiary Butyl Alcohol (TBA)	5.00	6.10		ug/L		122	70 - 130	1	20
<b>LCSD LCSD</b>									
Surrogate	%Recovery	Qualifier	Limits						
Toluene-d8 (Surr)	97		70 - 130						
4-Bromofluorobenzene (Surr)	89		70 - 130						
1,2-Dichloroethane-d4 (Surr)	101		70 - 130						

**Lab Sample ID: MRL 380-48215/4**  
**Matrix: Water**  
**Analysis Batch: 48215**

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Tertiary Butyl Alcohol (TBA)	2.00	2.76		ug/L		138	50 - 150
<b>MRL MRL</b>							
Surrogate	%Recovery	Qualifier	Limits				
Toluene-d8 (Surr)	93		50 - 150				
4-Bromofluorobenzene (Surr)	90		50 - 150				
1,2-Dichloroethane-d4 (Surr)	101		50 - 150				

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

**Lab Sample ID: MB 380-48256/21-A**  
**Matrix: Water**  
**Analysis Batch: 48488**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 48256**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	<0.098		0.098	ug/L		07/21/23 12:36	07/23/23 11:09	1
2,4'-DDE	<0.098		0.098	ug/L		07/21/23 12:36	07/23/23 11:09	1
2,4'-DDT	<0.098		0.098	ug/L		07/21/23 12:36	07/23/23 11:09	1
2,4-Dinitrotoluene	<0.098		0.098	ug/L		07/21/23 12:36	07/23/23 11:09	1
2,6-Dinitrotoluene	<0.098		0.098	ug/L		07/21/23 12:36	07/23/23 11:09	1
4,4'-DDD	<0.098		0.098	ug/L		07/21/23 12:36	07/23/23 11:09	1
4,4'-DDE	<0.098		0.098	ug/L		07/21/23 12:36	07/23/23 11:09	1
4,4'-DDT	<0.098		0.098	ug/L		07/21/23 12:36	07/23/23 11:09	1
Acenaphthene	<0.098		0.098	ug/L		07/21/23 12:36	07/23/23 11:09	1
Acenaphthylene	<0.098		0.098	ug/L		07/21/23 12:36	07/23/23 11:09	1

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-55362-1

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

**Lab Sample ID: MB 380-48256/21-A**  
**Matrix: Water**  
**Analysis Batch: 48488**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 48256**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Acetochlor	<0.098		0.098	ug/L		07/21/23 12:36	07/23/23 11:09	1
Alachlor	<0.049		0.049	ug/L		07/21/23 12:36	07/23/23 11:09	1
alpha-BHC	<0.098		0.098	ug/L		07/21/23 12:36	07/23/23 11:09	1
alpha-Chlordane	<0.049		0.049	ug/L		07/21/23 12:36	07/23/23 11:09	1
Anthracene	<0.020		0.020	ug/L		07/21/23 12:36	07/23/23 11:09	1
Atrazine	<0.049		0.049	ug/L		07/21/23 12:36	07/23/23 11:09	1
Benz(a)anthracene	<0.049		0.049	ug/L		07/21/23 12:36	07/23/23 11:09	1
Benzo[a]pyrene	<0.020		0.020	ug/L		07/21/23 12:36	07/23/23 11:09	1
Benzo[b]fluoranthene	<0.020		0.020	ug/L		07/21/23 12:36	07/23/23 11:09	1
Benzo[g,h,i]perylene	<0.049		0.049	ug/L		07/21/23 12:36	07/23/23 11:09	1
Benzo[k]fluoranthene	<0.020		0.020	ug/L		07/21/23 12:36	07/23/23 11:09	1
beta-BHC	<0.098		0.098	ug/L		07/21/23 12:36	07/23/23 11:09	1
Bis(2-ethylhexyl) phthalate	<0.59		0.59	ug/L		07/21/23 12:36	07/23/23 11:09	1
Bromacil	<0.098		0.098	ug/L		07/21/23 12:36	07/23/23 11:09	1
Butachlor	<0.049		0.049	ug/L		07/21/23 12:36	07/23/23 11:09	1
Butylbenzylphthalate	<0.49		0.49	ug/L		07/21/23 12:36	07/23/23 11:09	1
Chlorobenzilate	<0.098		0.098	ug/L		07/21/23 12:36	07/23/23 11:09	1
Chloroneb	<0.098		0.098	ug/L		07/21/23 12:36	07/23/23 11:09	1
Chlorothalonil (Draconil, Bravo)	<0.098		0.098	ug/L		07/21/23 12:36	07/23/23 11:09	1
Chlorpyrifos	<0.049		0.049	ug/L		07/21/23 12:36	07/23/23 11:09	1
Chrysene	<0.020		0.020	ug/L		07/21/23 12:36	07/23/23 11:09	1
delta-BHC	<0.098		0.098	ug/L		07/21/23 12:36	07/23/23 11:09	1
Di(2-ethylhexyl)adipate	<0.59		0.59	ug/L		07/21/23 12:36	07/23/23 11:09	1
Dibenz(a,h)anthracene	<0.049		0.049	ug/L		07/21/23 12:36	07/23/23 11:09	1
Diclorvos (DDVP)	<0.049		0.049	ug/L		07/21/23 12:36	07/23/23 11:09	1
Dieldrin	<0.20		0.20	ug/L		07/21/23 12:36	07/23/23 11:09	1
Diethylphthalate	<0.49		0.49	ug/L		07/21/23 12:36	07/23/23 11:09	1
Dimethylphthalate	<0.49		0.49	ug/L		07/21/23 12:36	07/23/23 11:09	1
Di-n-butyl phthalate	<0.98		0.98	ug/L		07/21/23 12:36	07/23/23 11:09	1
Di-n-octyl phthalate	<0.098		0.098	ug/L		07/21/23 12:36	07/23/23 11:09	1
Endosulfan I (Alpha)	<0.098		0.098	ug/L		07/21/23 12:36	07/23/23 11:09	1
Endosulfan II (Beta)	<0.098		0.098	ug/L		07/21/23 12:36	07/23/23 11:09	1
Endosulfan sulfate	<0.098		0.098	ug/L		07/21/23 12:36	07/23/23 11:09	1
Endrin	<0.098		0.098	ug/L		07/21/23 12:36	07/23/23 11:09	1
Endrin aldehyde	<0.098		0.098	ug/L		07/21/23 12:36	07/23/23 11:09	1
EPTC	<0.098		0.098	ug/L		07/21/23 12:36	07/23/23 11:09	1
Fluoranthene	<0.098		0.098	ug/L		07/21/23 12:36	07/23/23 11:09	1
Fluorene	<0.049		0.049	ug/L		07/21/23 12:36	07/23/23 11:09	1
gamma-BHC (Lindane)	<0.039		0.039	ug/L		07/21/23 12:36	07/23/23 11:09	1
gamma-Chlordane	<0.049		0.049	ug/L		07/21/23 12:36	07/23/23 11:09	1
Heptachlor	<0.039		0.039	ug/L		07/21/23 12:36	07/23/23 11:09	1
Heptachlor epoxide (isomer B)	<0.049		0.049	ug/L		07/21/23 12:36	07/23/23 11:09	1
Hexachlorobenzene	<0.049		0.049	ug/L		07/21/23 12:36	07/23/23 11:09	1
Hexachlorocyclopentadiene	<0.049		0.049	ug/L		07/21/23 12:36	07/23/23 11:09	1
Indeno[1,2,3-cd]pyrene	<0.049		0.049	ug/L		07/21/23 12:36	07/23/23 11:09	1
Isophorone	<0.49		0.49	ug/L		07/21/23 12:36	07/23/23 11:09	1
Malathion	<0.098		0.098	ug/L		07/21/23 12:36	07/23/23 11:09	1
Methoxychlor	<0.098		0.098	ug/L		07/21/23 12:36	07/23/23 11:09	1
Metolachlor	<0.049		0.049	ug/L		07/21/23 12:36	07/23/23 11:09	1

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# QC Sample Results

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

Job ID: 380-55362-1

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

**Lab Sample ID: MB 380-48256/21-A**  
**Matrix: Water**  
**Analysis Batch: 48488**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 48256**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Molinate	<0.098		0.098	ug/L		07/21/23 12:36	07/23/23 11:09	1
Naphthalene	<0.29		0.29	ug/L		07/21/23 12:36	07/23/23 11:09	1
Parathion	<0.098		0.098	ug/L		07/21/23 12:36	07/23/23 11:09	1
Pendimethalin (Penoxaline)	<0.098		0.098	ug/L		07/21/23 12:36	07/23/23 11:09	1
Phenanthrene	<0.039		0.039	ug/L		07/21/23 12:36	07/23/23 11:09	1
Propachlor	<0.049		0.049	ug/L		07/21/23 12:36	07/23/23 11:09	1
Pyrene	<0.049		0.049	ug/L		07/21/23 12:36	07/23/23 11:09	1
Simazine	<0.049		0.049	ug/L		07/21/23 12:36	07/23/23 11:09	1
Terbacil	<0.098		0.098	ug/L		07/21/23 12:36	07/23/23 11:09	1
Terbuthylazine	<0.098		0.098	ug/L		07/21/23 12:36	07/23/23 11:09	1
Thiobencarb	<0.20		0.20	ug/L		07/21/23 12:36	07/23/23 11:09	1
Total Permethrin (mixed isomers)	<0.20		0.20	ug/L		07/21/23 12:36	07/23/23 11:09	1
trans-Nonachlor	<0.049		0.049	ug/L		07/21/23 12:36	07/23/23 11:09	1
Trifluralin	<0.098		0.098	ug/L		07/21/23 12:36	07/23/23 11:09	1
1-Methylnaphthalene	<0.098		0.098	ug/L		07/21/23 12:36	07/23/23 11:09	1
2-Methylnaphthalene	<0.098		0.098	ug/L		07/21/23 12:36	07/23/23 11:09	1

Tentatively Identified Compound	MB Est. Result	MB Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Ethyl 3-acetoxybutyrate	0.530	T J N	ug/L		2.79	27846-49-7	07/21/23 12:36	07/23/23 11:09	1
n-Hexadecanoic acid	0.984	T J N	ug/L		5.88	57-10-3	07/21/23 12:36	07/23/23 11:09	1
Octadecanoic acid	0.723	T J N	ug/L		6.57	57-11-4	07/21/23 12:36	07/23/23 11:09	1
Hexadecanamide	0.540	T J N	ug/L		6.73	629-54-9	07/21/23 12:36	07/23/23 11:09	1
9-Octadecenamide, (Z)-	5.76	T J N	ug/L		7.59	301-02-0	07/21/23 12:36	07/23/23 11:09	1
13-Docosenamide, (Z)-	0.492	T J N	ug/L		10.25	112-84-5	07/21/23 12:36	07/23/23 11:09	1
tri(2-Ethylhexyl) trimellitate	1.23	T J N	ug/L		15.22	3319-31-1	07/21/23 12:36	07/23/23 11:09	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	106		70 - 130	07/21/23 12:36	07/23/23 11:09	1
Perylene-d12	86		70 - 130	07/21/23 12:36	07/23/23 11:09	1
Triphenylphosphate	120		70 - 130	07/21/23 12:36	07/23/23 11:09	1

**Lab Sample ID: LCS 380-48256/23-A**  
**Matrix: Water**  
**Analysis Batch: 48488**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 48256**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4'-DDD	1.96	2.14		ug/L		109	70 - 130
2,4'-DDE	1.96	2.07		ug/L		106	70 - 130
2,4'-DDT	1.96	2.14		ug/L		109	70 - 130
2,4-Dinitrotoluene	1.96	2.14		ug/L		109	70 - 130
2,6-Dinitrotoluene	1.96	2.06		ug/L		105	70 - 130
4,4'-DDD	1.96	2.05		ug/L		105	70 - 130
4,4'-DDE	1.96	1.98		ug/L		101	70 - 130
4,4'-DDT	1.96	2.15		ug/L		110	70 - 130
Acenaphthene	1.96	1.99		ug/L		102	70 - 130
Acenaphthylene	1.96	2.03		ug/L		104	70 - 130
Acetochlor	1.96	2.27		ug/L		116	70 - 130
Alachlor	1.96	2.38		ug/L		122	70 - 130

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-55362-1

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

**Lab Sample ID: LCS 380-48256/23-A**

**Matrix: Water**

**Analysis Batch: 48488**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 48256**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
alpha-BHC	1.96	2.24		ug/L		115	70 - 130
alpha-Chlordane	1.96	2.01		ug/L		103	70 - 130
Anthracene	1.96	2.07		ug/L		106	70 - 130
Atrazine	1.96	2.29		ug/L		117	70 - 130
Benz(a)anthracene	1.96	2.06		ug/L		105	70 - 130
Benzo[a]pyrene	1.96	1.88		ug/L		96	70 - 130
Benzo[b]fluoranthene	1.96	2.07		ug/L		106	70 - 130
Benzo[g,h,i]perylene	1.96	2.08		ug/L		107	70 - 130
Benzo[k]fluoranthene	1.96	1.95		ug/L		100	70 - 130
beta-BHC	1.96	2.32		ug/L		119	70 - 130
Bis(2-ethylhexyl) phthalate	1.96	2.13		ug/L		109	70 - 130
Bromacil	1.96	2.21		ug/L		113	70 - 130
Butachlor	1.96	2.57	*+	ug/L		131	70 - 130
Butylbenzylphthalate	1.96	2.29		ug/L		117	70 - 130
Chlorobenzilate	1.96	2.25		ug/L		115	70 - 130
Chloroneb	1.96	2.05		ug/L		105	70 - 130
Chlorothalonil (Draconil, Bravo)	1.96	2.21		ug/L		113	70 - 130
Chlorpyrifos	1.96	2.26		ug/L		115	70 - 130
Chrysene	1.96	2.05		ug/L		105	70 - 130
delta-BHC	1.96	2.08		ug/L		106	70 - 130
Di(2-ethylhexyl)adipate	1.96	2.24		ug/L		114	70 - 130
Dibenz(a,h)anthracene	1.96	2.06		ug/L		105	70 - 130
Diclorvos (DDVP)	1.96	2.19		ug/L		112	70 - 130
Dieldrin	1.96	2.09		ug/L		107	70 - 130
Diethylphthalate	1.96	2.30		ug/L		118	70 - 130
Dimethylphthalate	1.96	2.26		ug/L		115	70 - 130
Di-n-butyl phthalate	3.91	4.34		ug/L		111	70 - 130
Di-n-octyl phthalate	1.96	1.92		ug/L		98	70 - 130
Endosulfan I (Alpha)	1.96	1.98		ug/L		101	70 - 130
Endosulfan II (Beta)	1.96	2.20		ug/L		112	70 - 130
Endosulfan sulfate	1.96	2.09		ug/L		107	70 - 130
Endrin	1.96	2.47		ug/L		126	70 - 130
Endrin aldehyde	1.96	1.46		ug/L		75	70 - 130
EPTC	1.96	2.22		ug/L		114	70 - 130
Fluoranthene	1.96	2.28		ug/L		116	70 - 130
Fluorene	1.96	2.22		ug/L		113	70 - 130
gamma-BHC (Lindane)	1.96	2.31		ug/L		118	70 - 130
gamma-Chlordane	1.96	2.08		ug/L		106	70 - 130
Heptachlor	1.96	2.13		ug/L		109	70 - 130
Heptachlor epoxide (isomer B)	1.96	2.19		ug/L		112	70 - 130
Hexachlorobenzene	1.96	2.18		ug/L		111	70 - 130
Hexachlorocyclopentadiene	1.96	2.21		ug/L		113	70 - 130
Indeno[1,2,3-cd]pyrene	1.96	2.04		ug/L		105	70 - 130
Isophorone	1.96	2.09		ug/L		107	70 - 130
Malathion	1.96	2.29		ug/L		117	70 - 130
Methoxychlor	1.96	2.28		ug/L		117	70 - 130
Metolachlor	1.96	2.43		ug/L		124	70 - 130
Molinate	1.96	2.30		ug/L		118	70 - 130
Naphthalene	1.96	1.89		ug/L		97	70 - 130

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-55362-1

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

**Lab Sample ID: LCS 380-48256/23-A**  
**Matrix: Water**  
**Analysis Batch: 48488**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 48256**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec	
							Limits	
Parathion	1.96	2.50		ug/L		128	70 - 130	
Pendimethalin (Penoxaline)	1.96	2.23		ug/L		114	70 - 130	
Phenanthrene	1.96	1.98		ug/L		101	70 - 130	
Propachlor	1.96	2.38		ug/L		121	70 - 130	
Pyrene	1.96	2.28		ug/L		117	70 - 130	
Simazine	1.96	2.29		ug/L		117	70 - 130	
Terbacil	1.96	2.32		ug/L		118	70 - 130	
Terbutylazine	1.96	2.49		ug/L		127	70 - 130	
Thiobencarb	1.96	2.17		ug/L		111	70 - 130	
trans-Nonachlor	1.96	1.85		ug/L		95	70 - 130	
Trifluralin	1.96	2.21		ug/L		113	70 - 130	
1-Methylnaphthalene	1.96	2.03		ug/L		104	70 - 130	
2-Methylnaphthalene	1.96	2.05		ug/L		105	70 - 130	
		<b>LCS LCS</b>						
Surrogate	%Recovery	Qualifier	Limits					
2-Nitro-m-xylene	102		70 - 130					
Perylene-d12	86		70 - 130					
Triphenylphosphate	109		70 - 130					

**Lab Sample ID: LCSD 380-48256/24-A**  
**Matrix: Water**  
**Analysis Batch: 48488**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 48256**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	
							Limits		RPD	Limit
2,4'-DDD	1.96	2.09		ug/L		107	70 - 130	3	20	
2,4'-DDE	1.96	2.09		ug/L		107	70 - 130	1	20	
2,4'-DDT	1.96	2.17		ug/L		111	70 - 130	1	20	
2,4-Dinitrotoluene	1.96	1.98		ug/L		101	70 - 130	8	20	
2,6-Dinitrotoluene	1.96	1.97		ug/L		101	70 - 130	4	20	
4,4'-DDD	1.96	2.10		ug/L		107	70 - 130	2	20	
4,4'-DDE	1.96	2.01		ug/L		103	70 - 130	1	20	
4,4'-DDT	1.96	2.22		ug/L		113	70 - 130	3	20	
Acenaphthene	1.96	1.99		ug/L		102	70 - 130	0	20	
Acenaphthylene	1.96	2.02		ug/L		103	70 - 130	0	20	
Acetochlor	1.96	2.37		ug/L		121	70 - 130	4	20	
Alachlor	1.96	2.47		ug/L		126	70 - 130	4	20	
alpha-BHC	1.96	2.23		ug/L		114	70 - 130	1	20	
alpha-Chlordane	1.96	2.06		ug/L		105	70 - 130	3	20	
Anthracene	1.96	1.97		ug/L		100	70 - 130	5	20	
Atrazine	1.96	2.25		ug/L		115	70 - 130	2	20	
Benz(a)anthracene	1.96	2.17		ug/L		111	70 - 130	5	20	
Benzo[a]pyrene	1.96	2.01		ug/L		103	70 - 130	7	20	
Benzo[b]fluoranthene	1.96	2.15		ug/L		110	70 - 130	4	20	
Benzo[g,h,i]perylene	1.96	2.22		ug/L		113	70 - 130	6	20	
Benzo[k]fluoranthene	1.96	2.19		ug/L		112	70 - 130	11	20	
beta-BHC	1.96	2.25		ug/L		115	70 - 130	3	20	
Bis(2-ethylhexyl) phthalate	1.96	2.11		ug/L		108	70 - 130	1	20	
Bromacil	1.96	2.27		ug/L		116	70 - 130	3	20	

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-55362-1

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

**Lab Sample ID: LCSD 380-48256/24-A**  
**Matrix: Water**  
**Analysis Batch: 48488**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 48256**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	RPD Limit
							Limits	RPD		
Butachlor	1.96	2.66	*+	ug/L		136	70 - 130	4	20	
Butylbenzylphthalate	1.96	2.41		ug/L		123	70 - 130	5	20	
Chlorobenzilate	1.96	2.25		ug/L		115	70 - 130	0	20	
Chloroneb	1.96	2.15		ug/L		110	70 - 130	5	20	
Chlorothalonil (Draconil, Bravo)	1.96	2.17		ug/L		111	70 - 130	2	20	
Chlorpyrifos	1.96	2.32		ug/L		119	70 - 130	3	20	
Chrysene	1.96	2.04		ug/L		104	70 - 130	0	20	
delta-BHC	1.96	2.09		ug/L		106	70 - 130	0	20	
Di(2-ethylhexyl)adipate	1.96	2.29		ug/L		117	70 - 130	2	20	
Dibenz(a,h)anthracene	1.96	2.30		ug/L		117	70 - 130	11	20	
Diclorvos (DDVP)	1.96	2.22		ug/L		113	70 - 130	1	20	
Dieldrin	1.96	2.15		ug/L		110	70 - 130	3	20	
Diethylphthalate	1.96	2.32		ug/L		118	70 - 130	1	20	
Dimethylphthalate	1.96	2.29		ug/L		117	70 - 130	1	20	
Di-n-butyl phthalate	3.92	4.46		ug/L		114	70 - 130	3	20	
Di-n-octyl phthalate	1.96	2.08		ug/L		106	70 - 130	8	20	
Endosulfan I (Alpha)	1.96	2.04		ug/L		104	70 - 130	3	20	
Endosulfan II (Beta)	1.96	2.28		ug/L		116	70 - 130	4	20	
Endosulfan sulfate	1.96	2.17		ug/L		111	70 - 130	4	20	
Endrin	1.96	2.53		ug/L		129	70 - 130	3	20	
Endrin aldehyde	1.96	1.58		ug/L		81	70 - 130	8	20	
EPTC	1.96	2.27		ug/L		116	70 - 130	2	20	
Fluoranthene	1.96	2.29		ug/L		117	70 - 130	0	20	
Fluorene	1.96	2.20		ug/L		112	70 - 130	1	20	
gamma-BHC (Lindane)	1.96	2.21		ug/L		113	70 - 130	4	20	
gamma-Chlordane	1.96	2.11		ug/L		108	70 - 130	2	20	
Heptachlor	1.96	2.19		ug/L		112	70 - 130	3	20	
Heptachlor epoxide (isomer B)	1.96	2.20		ug/L		112	70 - 130	0	20	
Hexachlorobenzene	1.96	2.14		ug/L		109	70 - 130	2	20	
Hexachlorocyclopentadiene	1.96	2.14		ug/L		109	70 - 130	3	20	
Indeno[1,2,3-cd]pyrene	1.96	2.27		ug/L		116	70 - 130	10	20	
Isophorone	1.96	2.10		ug/L		107	70 - 130	1	20	
Malathion	1.96	2.29		ug/L		117	70 - 130	0	20	
Methoxychlor	1.96	2.36		ug/L		121	70 - 130	3	20	
Metolachlor	1.96	2.50		ug/L		128	70 - 130	3	20	
Molinate	1.96	2.36		ug/L		120	70 - 130	2	20	
Naphthalene	1.96	1.94		ug/L		99	70 - 130	2	20	
Parathion	1.96	2.52		ug/L		129	70 - 130	1	20	
Pendimethalin (Penoxaline)	1.96	2.26		ug/L		116	70 - 130	1	20	
Phenanthrene	1.96	1.94		ug/L		99	70 - 130	2	20	
Propachlor	1.96	2.37		ug/L		121	70 - 130	0	20	
Pyrene	1.96	2.29		ug/L		117	70 - 130	0	20	
Simazine	1.96	2.21		ug/L		113	70 - 130	4	20	
Terbacil	1.96	2.42		ug/L		124	70 - 130	4	20	
Terbutylazine	1.96	2.44		ug/L		125	70 - 130	2	20	
Thiobencarb	1.96	2.21		ug/L		113	70 - 130	2	20	
trans-Nonachlor	1.96	1.90		ug/L		97	70 - 130	3	20	
Trifluralin	1.96	2.26		ug/L		115	70 - 130	2	20	
1-Methylnaphthalene	1.96	2.06		ug/L		105	70 - 130	2	20	

Eurofins Eaton Analytical Pomona



# QC Sample Results

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

Job ID: 380-55362-1

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

**Lab Sample ID: LCSD 380-48256/24-A**  
**Matrix: Water**  
**Analysis Batch: 48488**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 48256**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2-Methylnaphthalene	1.96	2.06		ug/L		105	70 - 130	1	20

Surrogate	LCSD %Recovery	LCSD Qualifier	LCSD Limits
2-Nitro-m-xylene	104		70 - 130
Perylene-d12	90		70 - 130
Triphenylphosphate	115		70 - 130

**Lab Sample ID: MRL 380-48256/22-A**  
**Matrix: Water**  
**Analysis Batch: 48488**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 48256**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
2,4'-DDD	0.0978	0.129		ug/L		132	50 - 150
2,4'-DDE	0.0978	0.106		ug/L		109	50 - 150
2,4'-DDT	0.0978	0.121		ug/L		124	50 - 150
2,4-Dinitrotoluene	0.0978	0.117		ug/L		119	50 - 150
2,6-Dinitrotoluene	0.0978	0.106		ug/L		109	50 - 150
4,4'-DDD	0.0978	0.116		ug/L		118	50 - 150
4,4'-DDE	0.0978	0.101		ug/L		104	50 - 150
4,4'-DDT	0.0978	0.138		ug/L		141	50 - 150
Acenaphthene	0.0978	0.102		ug/L		105	50 - 150
Acenaphthylene	0.0978	0.0990		ug/L		101	50 - 150
Acetochlor	0.0489	0.0545	J	ug/L		112	50 - 150
Alachlor	0.0489	0.0615		ug/L		126	50 - 150
alpha-BHC	0.0978	0.105		ug/L		108	50 - 150
alpha-Chlordane	0.0244	<0.028		ug/L		105	50 - 150
Anthracene	0.0196	0.0192	J	ug/L		98	50 - 150
Atrazine	0.0489	0.0704		ug/L		144	50 - 150
Benz(a)anthracene	0.0489	0.0557		ug/L		114	50 - 150
Benzo[a]pyrene	0.0196	0.0190	J	ug/L		97	50 - 150
Benzo[b]fluoranthene	0.0196	0.0203		ug/L		104	50 - 150
Benzo[g,h,i]perylene	0.0489	0.0419	J	ug/L		86	50 - 150
Benzo[k]fluoranthene	0.0196	0.0180	J	ug/L		92	50 - 150
beta-BHC	0.0978	0.105		ug/L		107	50 - 150
Bis(2-ethylhexyl) phthalate	0.587	0.830		ug/L		141	50 - 150
Bromacil	0.0978	0.141		ug/L		144	50 - 150
Butachlor	0.0489	0.0659		ug/L		135	50 - 150
Butylbenzylphthalate	0.147	0.229	J ^3+	ug/L		156	50 - 150
Chlorobenzilate	0.0978	0.177	^3+	ug/L		181	50 - 150
Chloroneb	0.0978	0.103		ug/L		105	50 - 150
Chlorothalonil (Draconil, Bravo)	0.0978	0.125		ug/L		128	50 - 150
Chlorpyrifos	0.0489	0.0632		ug/L		129	50 - 150
Chrysene	0.0196	0.0213		ug/L		109	50 - 150
delta-BHC	0.0978	0.121		ug/L		124	50 - 150
Di(2-ethylhexyl)adipate	0.293	0.430	J	ug/L		147	50 - 150
Dibenz(a,h)anthracene	0.0489	0.0445	J	ug/L		91	50 - 150
Diclorvos (DDVP)	0.0489	0.0826	^3+	ug/L		169	50 - 150
Dieldrin	0.0978	0.103	J	ug/L		105	50 - 150

# QC Sample Results

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

Job ID: 380-55362-1

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

**Lab Sample ID: MRL 380-48256/22-A**  
**Matrix: Water**  
**Analysis Batch: 48488**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 48256**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Diethylphthalate	0.147	0.203	J	ug/L		138	50 - 150
Dimethylphthalate	0.293	0.329	J	ug/L		112	50 - 150
Di-n-butyl phthalate	0.293	0.386	J	ug/L		131	49 - 243
Di-n-octyl phthalate	0.0978	0.130		ug/L		133	50 - 150
Endosulfan I (Alpha)	0.0978	0.0988		ug/L		101	50 - 150
Endosulfan II (Beta)	0.0978	0.363	^3+	ug/L		372	50 - 150
Endosulfan sulfate	0.0978	0.110		ug/L		112	50 - 150
Endrin	0.0978	0.128		ug/L		131	50 - 150
Endrin aldehyde	0.0978	0.146		ug/L		150	50 - 150
EPTC	0.0978	0.108		ug/L		111	50 - 150
Fluoranthene	0.0489	0.0588	J	ug/L		120	50 - 150
Fluorene	0.0489	0.0546		ug/L		112	50 - 150
gamma-BHC (Lindane)	0.0391	0.0429		ug/L		110	50 - 150
gamma-Chlordane	0.0244	0.0273	J	ug/L		112	50 - 150
Heptachlor	0.0391	0.0552		ug/L		141	50 - 150
Heptachlor epoxide (isomer B)	0.0489	0.0514		ug/L		105	50 - 150
Hexachlorobenzene	0.0489	0.0416	J	ug/L		85	50 - 150
Hexachlorocyclopentadiene	0.0489	0.0520		ug/L		106	50 - 150
Indeno[1,2,3-cd]pyrene	0.0489	0.0425	J	ug/L		87	50 - 150
Isophorone	0.0978	0.119	J	ug/L		122	50 - 150
Malathion	0.0978	0.130		ug/L		133	50 - 150
Methoxychlor	0.0978	0.143		ug/L		147	50 - 150
Metolachlor	0.0489	0.0671		ug/L		137	50 - 150
Molinate	0.0978	0.113		ug/L		116	50 - 150
Naphthalene	0.0978	0.115	J	ug/L		118	50 - 150
Parathion	0.0978	0.139		ug/L		143	50 - 150
Pendimethalin (Penoxaline)	0.0978	0.121		ug/L		123	50 - 150
Phenanthrene	0.0196	0.0227	J	ug/L		116	50 - 150
Propachlor	0.0489	0.0576		ug/L		118	50 - 150
Pyrene	0.0489	0.0569		ug/L		116	50 - 150
Simazine	0.0489	0.0576		ug/L		118	50 - 150
Terbacil	0.0978	0.136		ug/L		139	50 - 150
Terbutylazine	0.0978	0.113		ug/L		116	50 - 150
Thiobencarb	0.0978	0.129	J	ug/L		132	50 - 150
trans-Nonachlor	0.0244	0.0258	J	ug/L		105	50 - 150
Trifluralin	0.0978	0.108		ug/L		110	50 - 150
1-Methylnaphthalene	0.0978	0.118		ug/L		121	50 - 150
2-Methylnaphthalene	0.0978	0.115		ug/L		117	50 - 150

Surrogate	MRL %Recovery	MRL Qualifier	Limits
2-Nitro-m-xylene	106		70 - 130
Perylene-d12	88		70 - 130
Triphenylphosphate	114		70 - 130

# QC Sample Results

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

Job ID: 380-55362-1

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

**Lab Sample ID: 380-55418-AO-1-B MS**

**Matrix: Water**

**Analysis Batch: 48488**

**Client Sample ID: Matrix Spike**

**Prep Type: Total/NA**

**Prep Batch: 48256**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
2,4'-DDD	<0.099		1.97	2.15		ug/L		109	70 - 130
2,4'-DDE	<0.099		1.97	2.09		ug/L		106	70 - 130
2,4'-DDT	<0.099		1.97	2.20		ug/L		112	70 - 130
2,4-Dinitrotoluene	<0.099		1.97	2.23		ug/L		113	70 - 130
2,6-Dinitrotoluene	<0.099		1.97	2.16		ug/L		110	70 - 130
4,4'-DDD	<0.099		1.97	2.08		ug/L		106	70 - 130
4,4'-DDE	<0.099		1.97	2.04		ug/L		104	70 - 130
4,4'-DDT	<0.099		1.97	2.24		ug/L		114	70 - 130
Acenaphthene	<0.099		1.97	1.97		ug/L		100	70 - 130
Acenaphthylene	<0.099		1.97	2.15		ug/L		109	70 - 130
Acetochlor	<0.099		1.97	2.39		ug/L		121	70 - 130
Alachlor	<0.049		1.97	2.51		ug/L		127	70 - 130
alpha-BHC	<0.099		1.97	2.30		ug/L		117	70 - 130
alpha-Chlordane	<0.049		1.97	2.04		ug/L		104	70 - 130
Anthracene	<0.020		1.97	1.97		ug/L		100	70 - 130
Atrazine	<0.049		1.97	2.29		ug/L		116	70 - 130
Benz(a)anthracene	<0.049		1.97	2.17		ug/L		110	70 - 130
Benzo[a]pyrene	<0.020		1.97	2.03		ug/L		103	70 - 130
Benzo[b]fluoranthene	<0.020		1.97	2.18		ug/L		111	70 - 130
Benzo[g,h,i]perylene	<0.049		1.97	2.24		ug/L		114	70 - 130
Benzo[k]fluoranthene	<0.020		1.97	2.15		ug/L		109	70 - 130
beta-BHC	<0.099		1.97	2.21		ug/L		112	70 - 130
Bis(2-ethylhexyl) phthalate	<0.59		1.97	2.04		ug/L		104	70 - 130
Bromacil	<0.099	F1	1.97	2.58	F1	ug/L		131	70 - 130
Butachlor	<0.049	*+ F1	1.97	2.65	F1	ug/L		134	70 - 130
Butylbenzylphthalate	<0.49	^3+	1.97	2.26		ug/L		115	70 - 130
Chlorobenzilate	<0.099	^3+ F1	1.97	2.46		ug/L		125	70 - 130
Chloroneb	<0.099		1.97	2.13		ug/L		108	70 - 130
Chlorothalonil (Draconil, Bravo)	<0.099		1.97	2.19		ug/L		111	70 - 130
Chlorpyrifos	<0.049		1.97	2.34		ug/L		119	70 - 130
Chrysene	<0.020		1.97	2.02		ug/L		102	70 - 130
delta-BHC	<0.099		1.97	2.06		ug/L		104	70 - 130
Di(2-ethylhexyl)adipate	<0.59		1.97	2.29		ug/L		116	70 - 130
Dibenz(a,h)anthracene	<0.049		1.97	2.32		ug/L		118	70 - 130
Diclorvos (DDVP)	<0.049	^3+	1.97	2.24		ug/L		114	70 - 130
Dieldrin	<0.20		1.97	2.12		ug/L		108	70 - 130
Diethylphthalate	<0.49		1.97	2.36		ug/L		120	70 - 130
Dimethylphthalate	<0.49		1.97	2.19		ug/L		111	70 - 130
Di-n-butyl phthalate	<0.99		3.94	4.76		ug/L		114	70 - 130
Di-n-octyl phthalate	<0.099		1.97	2.12		ug/L		108	70 - 130
Endosulfan I (Alpha)	<0.099		1.97	1.98		ug/L		101	70 - 130
Endosulfan II (Beta)	<0.099	^3+	1.97	2.31		ug/L		117	70 - 130
Endosulfan sulfate	<0.099		1.97	2.13		ug/L		108	70 - 130
Endrin	<0.099	F1	1.97	2.66	F1	ug/L		135	70 - 130
Endrin aldehyde	<0.099		1.97	1.55		ug/L		79	70 - 130
EPTC	<0.099		1.97	2.33		ug/L		118	70 - 130
Fluoranthene	<0.099		1.97	2.28		ug/L		116	70 - 130
Fluorene	<0.049		1.97	2.24		ug/L		114	70 - 130

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-55362-1

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

**Lab Sample ID: 380-55418-AO-1-B MS**  
**Matrix: Water**  
**Analysis Batch: 48488**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 48256**

Analyte	Sample	Sample Qualifier	Spike Added	MS	MS	Unit	D	%Rec	%Rec Limits
	Result			Result	Qualifier				
gamma-BHC (Lindane)	<0.040		1.97	2.21		ug/L		112	70 - 130
gamma-Chlordane	<0.049		1.97	2.11		ug/L		107	70 - 130
Heptachlor	<0.040		1.97	2.17		ug/L		110	70 - 130
Heptachlor epoxide (isomer B)	<0.049		1.97	2.21		ug/L		112	70 - 130
Hexachlorobenzene	<0.049		1.97	2.19		ug/L		111	70 - 130
Hexachlorocyclopentadiene	<0.049		1.97	2.17		ug/L		110	70 - 130
Indeno[1,2,3-cd]pyrene	<0.049		1.97	2.26		ug/L		115	70 - 130
Isophorone	<0.49		1.97	2.08		ug/L		106	70 - 130
Malathion	<0.099		1.97	2.35		ug/L		119	70 - 130
Methoxychlor	<0.099		1.97	2.31		ug/L		117	70 - 130
Metolachlor	<0.049		1.97	2.49		ug/L		126	70 - 130
Molinate	<0.099	F1	1.97	2.52		ug/L		128	70 - 130
Naphthalene	<0.30		1.97	1.92		ug/L		96	70 - 130
Parathion	<0.099	F1	1.97	2.52		ug/L		128	70 - 130
Pendimethalin (Penoxaline)	<0.099	F1	1.97	2.45		ug/L		125	70 - 130
Phenanthrene	<0.040		1.97	1.95		ug/L		99	70 - 130
Propachlor	<0.049		1.97	2.39		ug/L		122	70 - 130
Pyrene	<0.049		1.97	2.27		ug/L		115	70 - 130
Simazine	<0.049		1.97	2.34		ug/L		119	70 - 130
Terbacil	<0.099		1.97	2.42		ug/L		123	70 - 130
Terbutylazine	<0.099		1.97	2.43		ug/L		123	70 - 130
Thiobencarb	<0.20		1.97	2.21		ug/L		112	70 - 130
trans-Nonachlor	<0.049		1.97	1.93		ug/L		98	70 - 130
Trifluralin	<0.099		1.97	2.42		ug/L		123	70 - 130
1-Methylnaphthalene	<0.099		1.97	2.05		ug/L		104	70 - 130
2-Methylnaphthalene	<0.099		1.97	2.09		ug/L		106	70 - 130

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
2-Nitro-m-xylene	101		70 - 130
Perylene-d12	96		70 - 130
Triphenylphosphate	115		70 - 130

**Lab Sample ID: 380-55418-AO-1-C MSD**  
**Matrix: Water**  
**Analysis Batch: 48488**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 48256**

Analyte	Sample	Sample Qualifier	Spike Added	MSD	MSD	Unit	D	%Rec	%Rec Limits	RPD	
	Result			Result	Qualifier					RPD	Limit
2,4'-DDD	<0.099		1.97	2.22		ug/L		113	70 - 130	4	20
2,4'-DDE	<0.099		1.97	2.17		ug/L		110	70 - 130	4	20
2,4'-DDT	<0.099		1.97	2.30		ug/L		117	70 - 130	4	20
2,4-Dinitrotoluene	<0.099		1.97	2.35		ug/L		119	70 - 130	5	20
2,6-Dinitrotoluene	<0.099		1.97	2.30		ug/L		117	70 - 130	6	20
4,4'-DDD	<0.099		1.97	2.19		ug/L		111	70 - 130	5	20
4,4'-DDE	<0.099		1.97	2.13		ug/L		108	70 - 130	4	20
4,4'-DDT	<0.099		1.97	2.37		ug/L		121	70 - 130	6	20
Acenaphthene	<0.099		1.97	1.98		ug/L		100	70 - 130	0	20
Acenaphthylene	<0.099		1.97	2.17		ug/L		110	70 - 130	1	20
Acetochlor	<0.099		1.97	2.46		ug/L		125	70 - 130	3	20

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# QC Sample Results

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

Job ID: 380-55362-1

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

**Lab Sample ID: 380-55418-AO-1-C MSD**

**Client Sample ID: Matrix Spike Duplicate**

**Matrix: Water**

**Prep Type: Total/NA**

**Analysis Batch: 48488**

**Prep Batch: 48256**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		Limit
Alachlor	<0.049		1.97	2.49		ug/L		126	70 - 130	1	20
alpha-BHC	<0.099		1.97	2.40		ug/L		122	70 - 130	4	20
alpha-Chlordane	<0.049		1.97	2.11		ug/L		107	70 - 130	3	20
Anthracene	<0.020		1.97	2.00		ug/L		102	70 - 130	2	20
Atrazine	<0.049		1.97	2.36		ug/L		120	70 - 130	3	20
Benz(a)anthracene	<0.049		1.97	2.28		ug/L		116	70 - 130	5	20
Benzo[a]pyrene	<0.020		1.97	1.99		ug/L		101	70 - 130	2	20
Benzo[b]fluoranthene	<0.020		1.97	2.15		ug/L		109	70 - 130	2	20
Benzo[g,h,i]perylene	<0.049		1.97	2.21		ug/L		112	70 - 130	1	20
Benzo[k]fluoranthene	<0.020		1.97	2.15		ug/L		109	70 - 130	0	20
beta-BHC	<0.099		1.97	2.25		ug/L		114	70 - 130	2	20
Bis(2-ethylhexyl) phthalate	<0.59		1.97	2.11		ug/L		107	70 - 130	3	20
Bromacil	<0.099	F1	1.97	2.69	F1	ug/L		137	70 - 130	4	20
Butachlor	<0.049	*+ F1	1.97	2.79	F1	ug/L		142	70 - 130	5	20
Butylbenzylphthalate	<0.49	^3+	1.97	2.41		ug/L		123	70 - 130	7	20
Chlorobenzilate	<0.099	^3+ F1	1.97	2.77	F1	ug/L		141	70 - 130	12	20
Chloroneb	<0.099		1.97	2.21		ug/L		112	70 - 130	4	20
Chlorothalonil (Draconil, Bravo)	<0.099		1.97	2.27		ug/L		115	70 - 130	3	20
Chlorpyrifos	<0.049		1.97	2.41		ug/L		122	70 - 130	3	20
Chrysene	<0.020		1.97	1.96		ug/L		99	70 - 130	3	20
delta-BHC	<0.099		1.97	2.07		ug/L		105	70 - 130	1	20
Di(2-ethylhexyl)adipate	<0.59		1.97	2.47		ug/L		126	70 - 130	8	20
Dibenz(a,h)anthracene	<0.049		1.97	2.33		ug/L		118	70 - 130	0	20
Diclorvos (DDVP)	<0.049	^3+	1.97	2.32		ug/L		118	70 - 130	4	20
Dieldrin	<0.20		1.97	2.23		ug/L		113	70 - 130	5	20
Diethylphthalate	<0.49		1.97	2.37		ug/L		120	70 - 130	0	20
Dimethylphthalate	<0.49		1.97	2.21		ug/L		112	70 - 130	1	20
Di-n-butyl phthalate	<0.99		3.94	5.04		ug/L		121	70 - 130	6	20
Di-n-octyl phthalate	<0.099		1.97	2.21		ug/L		112	70 - 130	4	20
Endosulfan I (Alpha)	<0.099		1.97	2.02		ug/L		103	70 - 130	2	20
Endosulfan II (Beta)	<0.099	^3+	1.97	2.41		ug/L		122	70 - 130	4	20
Endosulfan sulfate	<0.099		1.97	2.31		ug/L		117	70 - 130	8	20
Endrin	<0.099	F1	1.97	2.88	F1	ug/L		146	70 - 130	8	20
Endrin aldehyde	<0.099		1.97	1.69		ug/L		86	70 - 130	9	20
EPTC	<0.099		1.97	2.45		ug/L		125	70 - 130	5	20
Fluoranthene	<0.099		1.97	2.35		ug/L		119	70 - 130	3	20
Fluorene	<0.049		1.97	2.24		ug/L		114	70 - 130	0	20
gamma-BHC (Lindane)	<0.040		1.97	2.18		ug/L		111	70 - 130	1	20
gamma-Chlordane	<0.049		1.97	2.17		ug/L		110	70 - 130	3	20
Heptachlor	<0.040		1.97	2.19		ug/L		111	70 - 130	1	20
Heptachlor epoxide (isomer B)	<0.049		1.97	2.27		ug/L		115	70 - 130	2	20
Hexachlorobenzene	<0.049		1.97	2.21		ug/L		112	70 - 130	1	20
Hexachlorocyclopentadiene	<0.049		1.97	2.13		ug/L		108	70 - 130	2	20
Indeno[1,2,3-cd]pyrene	<0.049		1.97	2.28		ug/L		116	70 - 130	1	20
Isophorone	<0.49		1.97	2.10		ug/L		107	70 - 130	1	20
Malathion	<0.099		1.97	2.46		ug/L		125	70 - 130	4	20
Methoxychlor	<0.099		1.97	2.33		ug/L		118	70 - 130	1	20
Metolachlor	<0.049		1.97	2.53		ug/L		128	70 - 130	2	20
Molinate	<0.099	F1	1.97	2.59	F1	ug/L		132	70 - 130	3	20

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# QC Sample Results

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

Job ID: 380-55362-1

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

**Lab Sample ID: 380-55418-AO-1-C MSD**  
**Matrix: Water**  
**Analysis Batch: 48488**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 48256**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Naphthalene	<0.30		1.97	1.93		ug/L		97	70 - 130	1	20
Parathion	<0.099	F1	1.97	2.58	F1	ug/L		131	70 - 130	2	20
Pendimethalin (Penoxaline)	<0.099	F1	1.97	2.58	F1	ug/L		131	70 - 130	5	20
Phenanthrene	<0.040		1.97	1.98		ug/L		100	70 - 130	1	20
Propachlor	<0.049		1.97	2.50		ug/L		127	70 - 130	4	20
Pyrene	<0.049		1.97	2.36		ug/L		120	70 - 130	4	20
Simazine	<0.049		1.97	2.43		ug/L		124	70 - 130	4	20
Terbacil	<0.099		1.97	2.53		ug/L		128	70 - 130	4	20
Terbutylazine	<0.099		1.97	2.51		ug/L		128	70 - 130	3	20
Thiobencarb	<0.20		1.97	2.25		ug/L		114	70 - 130	2	20
trans-Nonachlor	<0.049		1.97	2.01		ug/L		102	70 - 130	4	20
Trifluralin	<0.099		1.97	2.52		ug/L		128	70 - 130	4	20
1-Methylnaphthalene	<0.099		1.97	2.05		ug/L		104	70 - 130	0	20
2-Methylnaphthalene	<0.099		1.97	2.11		ug/L		107	70 - 130	1	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
2-Nitro-m-xylene	103		70 - 130
Perylene-d12	93		70 - 130
Triphenylphosphate	124		70 - 130

## Method: 504.1 - EDB, DBCP and 1,2,3-TCP (GC)

**Lab Sample ID: MBL 380-48695/4-A**  
**Matrix: Water**  
**Analysis Batch: 48950**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 48695**

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3-Trichloropropane	<0.0040		0.020	ug/L		07/25/23 13:05	07/25/23 17:17	1
1,2-D bromo-3-Chloropropane	<0.0020		0.010	ug/L		07/25/23 13:05	07/25/23 17:17	1
1,2-D bromoethane	<0.0040		0.010	ug/L		07/25/23 13:05	07/25/23 17:17	1

Surrogate	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dibromopropane (Surr)	102		60 - 140	07/25/23 13:05	07/25/23 17:17	1

**Lab Sample ID: LCS 380-48695/3-A**  
**Matrix: Water**  
**Analysis Batch: 48950**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 48695**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,2,3-Trichloropropane	0.200	0.218		ug/L		109	70 - 130
1,2-D bromo-3-Chloropropane	0.200	0.222		ug/L		111	70 - 130
1,2-D bromoethane	0.200	0.234		ug/L		117	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dibromopropane (Surr)	111		60 - 140

# QC Sample Results

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

Job ID: 380-55362-1

## Method: 504.1 - EDB, DBCP and 1,2,3-TCP (GC) (Continued)

**Lab Sample ID: MRL 380-48695/1-A**  
**Matrix: Water**  
**Analysis Batch: 48950**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 48695**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
1,2,3-Trichloropropane	0.0200	0.0182	J	ug/L		91	60 - 140
<b>Surrogate</b>	<b>%Recovery</b>	<b>MRL</b>	<b>Qualifier</b>	<b>Limits</b>			
1,2-Dibromopropane (Surr)	98			60 - 140			

**Lab Sample ID: MRL 380-48695/2-A**  
**Matrix: Water**  
**Analysis Batch: 48950**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 48695**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
1,2,3-Trichloropropane	0.0500	0.0479		ug/L		96	60 - 140
1,2-D bromo-3-Chloropropane	0.0100	0.0126		ug/L		126	60 - 140
1,2-D bromoethane	0.0100	0.0111		ug/L		111	60 - 140
<b>Surrogate</b>	<b>%Recovery</b>	<b>MRL</b>	<b>Qualifier</b>	<b>Limits</b>			
1,2-Dibromopropane (Surr)	108			60 - 140			

**Lab Sample ID: 380-55132-K-1-B MS**  
**Matrix: Water**  
**Analysis Batch: 48950**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 48695**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,2,3-Trichloropropane	<0.020		1.24	1.26		ug/L		101	65 - 135
1,2-D bromo-3-Chloropropane	<0.010		0.249	0.261		ug/L		105	65 - 135
1,2-D bromoethane	<0.010		0.249	0.266		ug/L		107	65 - 135
<b>Surrogate</b>	<b>%Recovery</b>	<b>MS</b>	<b>MS</b>	<b>Qualifier</b>	<b>Limits</b>				
1,2-Dibromopropane (Surr)	102				60 - 140				

**Lab Sample ID: 380-55132-K-1-C MSD**  
**Matrix: Water**  
**Analysis Batch: 48950**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 48695**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,2,3-Trichloropropane	<0.020		1.25	1.30		ug/L		104	65 - 135	3	20
1,2-D bromo-3-Chloropropane	<0.010		0.251	0.270		ug/L		108	65 - 135	3	20
1,2-D bromoethane	<0.010		0.251	0.273		ug/L		109	65 - 135	3	20
<b>Surrogate</b>	<b>%Recovery</b>	<b>MSD</b>	<b>MSD</b>	<b>Qualifier</b>	<b>Limits</b>						
1,2-Dibromopropane (Surr)	101				60 - 140						

**Lab Sample ID: 380-55132-J-4-A DU**  
**Matrix: Water**  
**Analysis Batch: 48950**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 48695**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
1,2,3-Trichloropropane	<0.020		<0.020		ug/L		NC	20

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-55362-1

## Method: 504.1 - EDB, DBCP and 1,2,3-TCP (GC) (Continued)

**Lab Sample ID: 380-55132-J-4-A DU**  
**Matrix: Water**  
**Analysis Batch: 48950**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 48695**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
1,2-D bromo-3-Chloropropane	<0.010		<0.010		ug/L		NC	20
1,2-D bromoethane	<0.010		<0.010		ug/L		NC	20
<b>DU DU</b>								
Surrogate	%Recovery	Qualifier	Limits					
1,2-Dibromopropane (Surr)	109		60 - 140					

## Method: 505 - Organochlorine Pesticides/PCBs (GC)

**Lab Sample ID: MBL 380-48321/4-A**  
**Matrix: Water**  
**Analysis Batch: 48824**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 48321**

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	<0.0020		0.010	ug/L		07/21/23 13:48	07/21/23 17:27	1
Dieldrin	<0.0050		0.010	ug/L		07/21/23 13:48	07/21/23 17:27	1
Toxaphene	<0.083		0.50	ug/L		07/21/23 13:48	07/21/23 17:27	1
Alachlor	<0.041		0.10	ug/L		07/21/23 13:48	07/21/23 17:27	1
Chlordane (n.o.s.)	<0.032		0.10	ug/L		07/21/23 13:48	07/21/23 17:27	1
Endrin	<0.0050		0.010	ug/L		07/21/23 13:48	07/21/23 17:27	1
Heptachlor	<0.0030		0.010	ug/L		07/21/23 13:48	07/21/23 17:27	1
Heptachlor epoxide	<0.0050		0.010	ug/L		07/21/23 13:48	07/21/23 17:27	1
gamma-BHC (Lindane)	<0.0070		0.010	ug/L		07/21/23 13:48	07/21/23 17:27	1
Methoxychlor	<0.022		0.050	ug/L		07/21/23 13:48	07/21/23 17:27	1
PCB-1016	<0.022		0.070	ug/L		07/21/23 13:48	07/21/23 17:27	1
PCB-1221	<0.079		0.10	ug/L		07/21/23 13:48	07/21/23 17:27	1
PCB-1232	<0.085		0.10	ug/L		07/21/23 13:48	07/21/23 17:27	1
PCB-1242	<0.072		0.10	ug/L		07/21/23 13:48	07/21/23 17:27	1
PCB-1248	<0.023		0.10	ug/L		07/21/23 13:48	07/21/23 17:27	1
PCB-1254	<0.035		0.10	ug/L		07/21/23 13:48	07/21/23 17:27	1
PCB-1260	<0.033		0.070	ug/L		07/21/23 13:48	07/21/23 17:27	1
Polychlorinated biphenyls, Total	<0.085		0.10	ug/L		07/21/23 13:48	07/21/23 17:27	1
<b>MBL MBL</b>								
Surrogate	%Recovery	Qualifier	Limits	Prepared		Analyzed	Dil Fac	
Tetrachloro-m-xylene	110		70 - 130	07/21/23 13:48		07/21/23 17:27	1	

**Lab Sample ID: MRL 380-48321/2-A**  
**Matrix: Water**  
**Analysis Batch: 48824**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 48321**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Aldrin	0.0100	0.0117		ug/L		117	50 - 150
Dieldrin	0.0100	0.0105		ug/L		105	50 - 150
Alachlor	0.100	0.0909	J	ug/L		91	50 - 150
Endrin	0.0100	0.00807	J	ug/L		81	50 - 150
Heptachlor	0.0100	0.0108		ug/L		108	50 - 150
Heptachlor epoxide	0.0100	0.00835	J	ug/L		83	50 - 150
gamma-BHC (Lindane)	0.0100	0.00962	J	ug/L		96	50 - 150
Methoxychlor	0.0500	0.0386	J	ug/L		77	50 - 150

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# QC Sample Results

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

Job ID: 380-55362-1

## Method: 505 - Organochlorine Pesticides/PCBs (GC) (Continued)

**Lab Sample ID: MRL 380-48321/2-A**  
**Matrix: Water**  
**Analysis Batch: 48824**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 48321**

Surrogate	%Recovery	MRL Qualifier	MRL Limits
Tetrachloro-m-xylene	107		70 - 130

**Lab Sample ID: MRL 380-48321/3-A**  
**Matrix: Water**  
**Analysis Batch: 48824**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 48321**

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chlordane (n.o.s.)	0.100	0.116		ug/L		116	50 - 150

Surrogate	%Recovery	MRL Qualifier	MRL Limits
Tetrachloro-m-xylene	108		70 - 130

**Lab Sample ID: 380-55418-J-1-A MS**  
**Matrix: Water**  
**Analysis Batch: 48824**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 48321**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Aldrin	<0.0099		0.0199	0.0230		ug/L		116	65 - 135
Dieldrin	<0.0099		0.0199	0.0242		ug/L		122	65 - 135
Alachlor	<0.099		0.199	0.202		ug/L		102	65 - 135
Endrin	<0.0099		0.0199	0.0190		ug/L		96	65 - 135
Heptachlor	<0.0099		0.0199	0.0201		ug/L		101	65 - 135
Heptachlor epoxide	<0.0099		0.0199	0.0193		ug/L		97	65 - 135
gamma-BHC (Lindane)	<0.0099		0.0199	0.0188		ug/L		94	65 - 135
Methoxychlor	<0.050		0.0994	0.0952		ug/L		96	65 - 135

Surrogate	%Recovery	MS Qualifier	MS Limits
Tetrachloro-m-xylene	106		70 - 130

**Lab Sample ID: 380-55418-K-1-A MS**  
**Matrix: Water**  
**Analysis Batch: 48824**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 48321**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chlordane (n.o.s.)	<0.099		0.507	0.550		ug/L		108	65 - 135

Surrogate	%Recovery	MS Qualifier	MS Limits
Tetrachloro-m-xylene	102		70 - 130

**Lab Sample ID: 380-55418-M-1-A MSD**  
**Matrix: Water**  
**Analysis Batch: 48824**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 48321**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD RPD	RPD Limit
Aldrin	<0.0099		0.0201	0.0237		ug/L					
Dieldrin	<0.0099		0.0201	0.0249		ug/L					
Alachlor	<0.099		0.201	0.203		ug/L					
Endrin	<0.0099		0.0201	0.0192		ug/L					

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# QC Sample Results

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

Job ID: 380-55362-1

## Method: 505 - Organochlorine Pesticides/PCBs (GC) (Continued)

**Lab Sample ID: 380-55418-M-1-A MSD**

**Matrix: Water**

**Analysis Batch: 48824**

**Client Sample ID: Matrix Spike Duplicate**

**Prep Type: Total/NA**

**Prep Batch: 48321**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Heptachlor	<0.0099		0.0201	0.0212		ug/L					
Heptachlor epoxide	<0.0099		0.0201	0.0195		ug/L					
gamma-BHC (Lindane)	<0.0099		0.0201	0.0185		ug/L					
Methoxychlor	<0.050		0.100	0.0987		ug/L					

Surrogate	MSD %Recovery	MSD Qualifier	MSD Limits
Tetrachloro-m-xylene	104		70 - 130

**Lab Sample ID: 380-55418-N-1-A MSD**

**Matrix: Water**

**Analysis Batch: 48824**

**Client Sample ID: Matrix Spike Duplicate**

**Prep Type: Total/NA**

**Prep Batch: 48321**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chlordane (n.o.s.)	<0.099		0.500	0.554		ug/L		111	65 - 135	1	

Surrogate	MSD %Recovery	MSD Qualifier	MSD Limits
Tetrachloro-m-xylene	100		70 - 130

**Lab Sample ID: 380-55450-Q-3-A MS**

**Matrix: Water**

**Analysis Batch: 48824**

**Client Sample ID: Matrix Spike**

**Prep Type: Total/NA**

**Prep Batch: 48321**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Aldrin	<0.010		0.102	0.113		ug/L		111	65 - 135
Dieldrin	<0.010		0.102	0.102		ug/L		100	65 - 135
Alachlor	<0.10		1.02	1.00		ug/L		98	65 - 135
Endrin	<0.010		0.102	0.0996		ug/L		98	65 - 135
Heptachlor	<0.010		0.102	0.101		ug/L		99	65 - 135
Heptachlor epoxide	<0.010		0.102	0.102		ug/L		100	65 - 135
gamma-BHC (Lindane)	<0.010		0.102	0.0980		ug/L		96	65 - 135
Methoxychlor	<0.050		0.509	0.468		ug/L		92	65 - 135

Surrogate	MS %Recovery	MS Qualifier	MS Limits
Tetrachloro-m-xylene	111		70 - 130

**Lab Sample ID: 380-55450-R-3-A MS**

**Matrix: Water**

**Analysis Batch: 48824**

**Client Sample ID: Matrix Spike**

**Prep Type: Total/NA**

**Prep Batch: 48321**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chlordane (n.o.s.)	<0.10		0.501	0.568		ug/L		113	65 - 135

Surrogate	MS %Recovery	MS Qualifier	MS Limits
Tetrachloro-m-xylene	114		70 - 130

# QC Sample Results

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

Job ID: 380-55362-1

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 380-48146/4**  
**Matrix: Water**  
**Analysis Batch: 48146**

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

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.050		0.050	mg/L			07/19/23 12:01	1
Nitrite as N	<0.050		0.050	mg/L			07/19/23 12:01	1

**Lab Sample ID: LCS 380-48146/7**  
**Matrix: Water**  
**Analysis Batch: 48146**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate as N	2.50	2.49		mg/L		100	90 - 110
Nitrite as N	1.00	1.02		mg/L		102	90 - 110

**Lab Sample ID: LCSD 380-48146/8**  
**Matrix: Water**  
**Analysis Batch: 48146**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrate as N	2.50	2.47		mg/L		99	90 - 110	1	20
Nitrite as N	1.00	1.01		mg/L		101	90 - 110	1	20

**Lab Sample ID: MRL 380-48146/5**  
**Matrix: Water**  
**Analysis Batch: 48146**

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate as N	0.0125	0.0102	J	mg/L		82	50 - 150
Nitrite as N	0.0125	0.0126	J	mg/L		101	50 - 150

**Lab Sample ID: MRL 380-48146/6**  
**Matrix: Water**  
**Analysis Batch: 48146**

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate as N	0.0500	0.0474	J	mg/L		95	50 - 150
Nitrite as N	0.0500	0.0502		mg/L		100	50 - 150

**Lab Sample ID: 380-55345-AY-1 MS**  
**Matrix: Water**  
**Analysis Batch: 48146**

**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
Nitrate as N	<0.050		1.25	1.22		mg/L		98	80 - 120
Nitrite as N	<0.050		0.500	0.503		mg/L		101	80 - 120

**Lab Sample ID: 380-55345-AY-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 48146**

**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
Nitrate as N	<0.050		1.25	1.23		mg/L		98	80 - 120	0	20
Nitrite as N	<0.050		0.500	0.506		mg/L		101	80 - 120	1	20

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# QC Sample Results

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

Job ID: 380-55362-1

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 380-48147/4**  
**Matrix: Water**  
**Analysis Batch: 48147**

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

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.50		0.50	mg/L			07/19/23 12:01	1
Sulfate	<0.25		0.25	mg/L			07/19/23 12:01	1

**Lab Sample ID: LCS 380-48147/7**  
**Matrix: Water**  
**Analysis Batch: 48147**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	25.0	25.9		mg/L		104	90 - 110
Sulfate	50.0	51.7		mg/L		104	90 - 110

**Lab Sample ID: LCSD 380-48147/8**  
**Matrix: Water**  
**Analysis Batch: 48147**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	25.0	25.7		mg/L		103	90 - 110	1	20
Sulfate	50.0	51.4		mg/L		103	90 - 110	1	20

**Lab Sample ID: MRL 380-48147/5**  
**Matrix: Water**  
**Analysis Batch: 48147**

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	0.125	0.116	J	mg/L		93	50 - 150
Sulfate	0.250	0.241	J	mg/L		97	50 - 150

**Lab Sample ID: MRL 380-48147/6**  
**Matrix: Water**  
**Analysis Batch: 48147**

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	0.500	0.427	J	mg/L		85	50 - 150
Sulfate	1.00	0.957		mg/L		96	50 - 150

**Lab Sample ID: 380-55345-AY-1 MS**  
**Matrix: Water**  
**Analysis Batch: 48147**

**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
Chloride	<0.50		12.5	12.6		mg/L		100	80 - 120
Sulfate	<0.25		25.0	25.6		mg/L		102	80 - 120

**Lab Sample ID: 380-55345-AY-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 48147**

**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
Chloride	<0.50		12.5	12.6		mg/L		101	80 - 120	0	20
Sulfate	<0.25		25.0	25.7		mg/L		103	80 - 120	0	20

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# QC Sample Results

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

Job ID: 380-55362-1

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 380-49344/4**  
**Matrix: Water**  
**Analysis Batch: 49344**

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

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	<5.0		5.0	ug/L			07/27/23 16:41	1

**Lab Sample ID: LCS 380-49344/5**  
**Matrix: Water**  
**Analysis Batch: 49344**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Bromide	100	97.3		ug/L		97	90 - 110

**Lab Sample ID: LCSD 380-49344/6**  
**Matrix: Water**  
**Analysis Batch: 49344**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Bromide	100	97.1		ug/L		97	90 - 110	0	10

**Lab Sample ID: MRL 380-49344/3**  
**Matrix: Water**  
**Analysis Batch: 49344**

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Bromide	5.00	4.11	J	ug/L		82	75 - 125

**Lab Sample ID: 380-56013-BM-1 MS**  
**Matrix: Water**  
**Analysis Batch: 49344**

**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
Bromide	<5.0		50.0	50.0		ug/L		98	80 - 120

**Lab Sample ID: 380-56013-BM-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 49344**

**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
Bromide	<5.0		50.0	50.1		ug/L		98	80 - 120	0	20

**Lab Sample ID: MB 380-49801/4**  
**Matrix: Water**  
**Analysis Batch: 49801**

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

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Bromide	<5.0		5.0	ug/L			07/31/23 17:21	1

**Lab Sample ID: LCS 380-49801/5**  
**Matrix: Water**  
**Analysis Batch: 49801**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Bromide	100	99.1		ug/L		99	90 - 110

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# QC Sample Results

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

Job ID: 380-55362-1

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: LCSD 380-49801/6**  
**Matrix: Water**  
**Analysis Batch: 49801**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Bromide	100	99.6		ug/L		100	90 - 110	1	10

**Lab Sample ID: MRL 380-49801/3**  
**Matrix: Water**  
**Analysis Batch: 49801**

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Bromide	5.00	5.17		ug/L		103	75 - 125		

**Lab Sample ID: 380-54822-A-10 MS**  
**Matrix: Water**  
**Analysis Batch: 49801**

**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	RPD	RPD Limit
Bromide	<5.0		50.0	49.2		ug/L		98	80 - 120		

**Lab Sample ID: 380-54822-A-10 MSD**  
**Matrix: Water**  
**Analysis Batch: 49801**

**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
Bromide	<5.0		50.0	48.7		ug/L		97	80 - 120	1	20

## Method: 200.7 Rev 4.4 - Metals (ICP)

**Lab Sample ID: MB 380-48219/18**  
**Matrix: Water**  
**Analysis Batch: 48219**

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

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	<1.0		1.0	mg/L			07/20/23 14:34	1
Magnesium	<0.10		0.10	mg/L			07/20/23 14:34	1
Potassium	<1.0		1.0	mg/L			07/20/23 14:34	1
Sodium	<1.0		1.0	mg/L			07/20/23 14:34	1

**Lab Sample ID: LCS 380-48219/20**  
**Matrix: Water**  
**Analysis Batch: 48219**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Calcium	50.0	52.0		mg/L		104	85 - 115		
Magnesium	20.0	20.4		mg/L		102	85 - 115		
Potassium	20.0	20.3		mg/L		101	85 - 115		
Sodium	50.0	51.4		mg/L		103	85 - 115		

# QC Sample Results

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

Job ID: 380-55362-1

## Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

**Lab Sample ID: LCSD 380-48219/21**  
**Matrix: Water**  
**Analysis Batch: 48219**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Calcium	50.0	50.1		mg/L		100	85 - 115	4	20
Magnesium	20.0	19.8		mg/L		99	85 - 115	3	20
Potassium	20.0	19.7		mg/L		98	85 - 115	3	20
Sodium	50.0	49.4		mg/L		99	85 - 115	4	20

**Lab Sample ID: LLCS 380-48219/19**  
**Matrix: Water**  
**Analysis Batch: 48219**

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

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Calcium	1.00	1.04		mg/L		104	50 - 150
Magnesium	0.100	0.0951	J	mg/L		95	50 - 150
Potassium	1.00	0.640	J	mg/L		64	50 - 150
Sodium	1.00	1.16		mg/L		116	50 - 150

**Lab Sample ID: 380-55337-A-6 MS**  
**Matrix: Water**  
**Analysis Batch: 48219**

**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
Calcium	76		50.0	122		mg/L		93	70 - 130
Magnesium	39		20.0	57.7		mg/L		92	70 - 130
Potassium	1.6		20.0	23.2		mg/L		108	70 - 130
Sodium	91		50.0	134		mg/L		86	70 - 130

**Lab Sample ID: 380-55337-A-6 MSD**  
**Matrix: Water**  
**Analysis Batch: 48219**

**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
Calcium	76		50.0	122		mg/L		93	70 - 130	0	20
Magnesium	39		20.0	57.8		mg/L		93	70 - 130	0	20
Potassium	1.6		20.0	23.2		mg/L		108	70 - 130	0	20
Sodium	91		50.0	135		mg/L		87	70 - 130	0	20

## Method: 200.8 - Metals (ICP/MS)

**Lab Sample ID: MB 810-69217/14**  
**Matrix: Water**  
**Analysis Batch: 69217**

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

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<1.0		1.0	ug/L			08/10/23 15:09	1
Arsenic	<1.0		1.0	ug/L			08/10/23 15:09	1
Beryllium	<0.30		0.30	ug/L			08/10/23 15:09	1
Cadmium	<0.50		0.50	ug/L			08/10/23 15:09	1
Chromium	<0.90		0.90	ug/L			08/10/23 15:09	1
Copper	<1.0		1.0	ug/L			08/10/23 15:09	1
Lead	<0.50		0.50	ug/L			08/10/23 15:09	1
Nickel	<1.0		1.0	ug/L			08/10/23 15:09	1

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-55362-1

## Method: 200.8 - Metals (ICP/MS) (Continued)

**Lab Sample ID: MB 810-69217/14**  
**Matrix: Water**  
**Analysis Batch: 69217**

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

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	<2.0		2.0	ug/L			08/10/23 15:09	1
Silver	<0.50		0.50	ug/L			08/10/23 15:09	1
Thallium	<0.30		0.30	ug/L			08/10/23 15:09	1
Zinc	<5.0		5.0	ug/L			08/10/23 15:09	1

**Lab Sample ID: LCS 810-69217/15**  
**Matrix: Water**  
**Analysis Batch: 69217**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	50.0	49.8		ug/L		100	85 - 115
Arsenic	50.0	48.7		ug/L		97	85 - 115
Beryllium	50.0	49.7		ug/L		99	85 - 115
Cadmium	50.0	48.9		ug/L		98	85 - 115
Chromium	50.0	49.6		ug/L		99	85 - 115
Copper	50.0	48.5		ug/L		97	85 - 115
Lead	50.0	49.2		ug/L		98	85 - 115
Nickel	50.0	48.5		ug/L		97	85 - 115
Selenium	50.0	48.1		ug/L		96	85 - 115
Silver	50.0	49.5		ug/L		99	85 - 115
Thallium	50.0	49.1		ug/L		98	85 - 115
Zinc	50.0	49.0		ug/L		98	85 - 115

**Lab Sample ID: LLCS 810-69217/11**  
**Matrix: Water**  
**Analysis Batch: 69217**

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

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	0.300	0.286	J	ug/L		95	50 - 150
Arsenic	0.300	<0.60		ug/L		102	50 - 150
Beryllium	0.300	0.323		ug/L		108	50 - 150
Cadmium	0.300	0.299	J	ug/L		100	50 - 150
Chromium	0.300	<0.43		ug/L		85	50 - 150
Copper	0.300	<0.57		ug/L		98	50 - 150
Lead	0.300	0.259	J	ug/L		86	50 - 150
Nickel	0.300	<0.53		ug/L		102	50 - 150
Selenium	0.300	<1.4		ug/L		115	50 - 150
Silver	0.300	<0.28		ug/L		91	50 - 150
Thallium	0.300	0.268	J	ug/L		89	50 - 150
Zinc	0.300	<2.3		ug/L		106	50 - 150

**Lab Sample ID: LLCS 810-69217/12**  
**Matrix: Water**  
**Analysis Batch: 69217**

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

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Antimony	1.00	0.939	J	ug/L		94	50 - 150
Arsenic	1.00	0.970	J	ug/L		97	50 - 150
Copper	1.00	0.980	J	ug/L		98	50 - 150

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# QC Sample Results

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

Job ID: 380-55362-1

## Method: 200.8 - Metals (ICP/MS) (Continued)

**Lab Sample ID: LLCS 810-69217/12**  
**Matrix: Water**  
**Analysis Batch: 69217**

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

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Nickel	1.00	0.866	J	ug/L		87	50 - 150
Selenium	1.00	<1.4		ug/L		96	50 - 150
Zinc	1.00	<2.3		ug/L		100	50 - 150

**Lab Sample ID: LLCS 810-69217/13**  
**Matrix: Water**  
**Analysis Batch: 69217**

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

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Zinc	5.00	4.92	J	ug/L		98	50 - 150

**Lab Sample ID: 810-72359-A-15 MS**  
**Matrix: Water**  
**Analysis Batch: 69217**

**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
Antimony	<1.0		50.0	51.6		ug/L		103	70 - 130
Arsenic	<1.0		50.0	52.4		ug/L		105	70 - 130
Beryllium	<0.30		50.0	52.6		ug/L		105	70 - 130
Cadmium	<0.50		50.0	50.6		ug/L		101	70 - 130
Chromium	<0.90		50.0	51.0		ug/L		102	70 - 130
Copper	3.6		50.0	53.2		ug/L		99	70 - 130
Lead	<0.50		50.0	51.1		ug/L		102	70 - 130
Nickel	<1.0		50.0	50.5		ug/L		99	70 - 130
Selenium	<2.0		50.0	52.1		ug/L		104	70 - 130
Silver	<0.50		50.0	38.8		ug/L		78	70 - 130
Thallium	<0.30		50.0	52.2		ug/L		104	70 - 130
Zinc	<5.0		50.0	52.0		ug/L		104	70 - 130

**Lab Sample ID 810 72359 A 15 MSD**  
**Matrix: Water**  
**Analysis Batch: 69217**

**Client Sample ID Matri Spike Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Antimony	<1.0		50.0	53.9		ug/L		108	70 - 130	4	20
Arsenic	<1.0		50.0	53.9		ug/L		108	70 - 130	3	20
Beryllium	<0.30		50.0	53.7		ug/L		107	70 - 130	2	20
Cadmium	<0.50		50.0	52.4		ug/L		105	70 - 130	3	20
Chromium	<0.90		50.0	52.8		ug/L		106	70 - 130	3	20
Copper	3.6		50.0	54.9		ug/L		103	70 - 130	3	20
Lead	<0.50		50.0	52.7		ug/L		105	70 - 130	3	20
Nickel	<1.0		50.0	51.7		ug/L		102	70 - 130	2	20
Selenium	<2.0		50.0	52.9		ug/L		106	70 - 130	2	20
Silver	<0.50		50.0	41.8		ug/L		84	70 - 130	8	20
Thallium	<0.30		50.0	53.7		ug/L		107	70 - 130	3	20
Zinc	<5.0		50.0	53.8		ug/L		108	70 - 130	3	20

# QC Sample Results

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

Job ID: 380-55362-1

## Method: 245.1 - Mercury (CVAA)

**Lab Sample ID: MB 810-67288/1-A**  
**Matrix: Water**  
**Analysis Batch: 67330**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 67288**

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.10		0.10	ug/L		07/27/23 12:00	07/27/23 20:15	1

**Lab Sample ID: LCS 810-67288/3-A**  
**Matrix: Water**  
**Analysis Batch: 67330**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 67288**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	1.00	0.967		ug/L		97	85 - 115

**Lab Sample ID: 380-55132-AV-1-B MS**  
**Matrix: Water**  
**Analysis Batch: 67330**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 67288**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	<0.10		1.00	0.981		ug/L		98	70 - 130

**Lab Sample ID: 380-55132-AV-1-C MSD**  
**Matrix: Water**  
**Analysis Batch: 67330**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 67288**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	<0.10		1.00	0.924		ug/L		92	70 - 130	6	20

## Method: SM 2320B - Alkalinity

**Lab Sample ID: MB 380-48315/1**  
**Matrix: Water**  
**Analysis Batch: 48315**

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

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
A kalinity	<2.0		2.0	mg/L			07/20/23 13:19	1
Bicarbonate Alkalinity as CaCO3	<2.0		2.0	mg/L			07/20/23 13:19	1
Carbonate Alkalinity as CaCO3	<2.0		2.0	mg/L			07/20/23 13:19	1

**Lab Sample ID: LCS 380-48315/3**  
**Matrix: Water**  
**Analysis Batch: 48315**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
A kalinity	100	98.9		mg/L		99	90 - 110

**Lab Sample ID: LCSD 380-48315/18**  
**Matrix: Water**  
**Analysis Batch: 48315**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
A kalinity	100	98.9		mg/L		99	90 - 110	0	20

# QC Sample Results

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

Job ID: 380-55362-1

## Method: SM 2320B - Alkalinity (Continued)

**Lab Sample ID: LLCS 380-48315/4**  
**Matrix: Water**  
**Analysis Batch: 48315**

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

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
A kalinity	20.0	19.8		mg/L		99	90 - 110

**Lab Sample ID: MRL 380-48315/2**  
**Matrix: Water**  
**Analysis Batch: 48315**

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
A kalinity	2.00	1.80	J	mg/L		90	50 - 150

**Lab Sample ID: 380-55139-AX-1 MS**  
**Matrix: Water**  
**Analysis Batch: 48315**

**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
A kalinity	140		100	234		mg/L		96	80 - 120

**Lab Sample ID: 380-55139-AX-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 48315**

**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
A kalinity	140		100	234		mg/L		95	80 - 120	0	20

**Lab Sample ID: 380-55139-AX-1 DU**  
**Matrix: Water**  
**Analysis Batch: 48315**

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

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
A kalinity	140		138		mg/L		0.4	20
Bicarbonate Alkalinity as CaCO3	140		138		mg/L		0.4	20
Carbonate Alkalinity as CaCO3	<2.0		<2.0		mg/L		NC	20

## Method: SM 2510B - Conductivity, Specific Conductance

**Lab Sample ID: MB 380-48317/2**  
**Matrix: Water**  
**Analysis Batch: 48317**

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

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Specific Conductance	<2.0		2.0	umhos/cm			07/20/23 13:19	1

**Lab Sample ID: LCS 380-48317/4**  
**Matrix: Water**  
**Analysis Batch: 48317**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Specific Conductance	1000	999		umhos/cm		100	90 - 110

# QC Sample Results

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

Job ID: 380-55362-1

## Method: SM 2510B - Conductivity, Specific Conductance (Continued)

**Lab Sample ID: LCSD 380-48317/16**  
**Matrix: Water**  
**Analysis Batch: 48317**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Specific Conductance	1000	994		umhos/cm		99	90 - 110	1	10

**Lab Sample ID: MRL 380-48317/3**  
**Matrix: Water**  
**Analysis Batch: 48317**

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Specific Conductance	2.00	2.00		umhos/cm		100	50 - 150		

**Lab Sample ID: 380-55139-AX-1 DU**  
**Matrix: Water**  
**Analysis Batch: 48317**

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

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Specific Conductance			754		umhos/cm			

## Method: SM 2540C - Solids, Total Dissolved (TDS)

**Lab Sample ID: MB 380-48652/1**  
**Matrix: Water**  
**Analysis Batch: 48652**

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

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10		10	mg/L			07/24/23 22:22	1

**Lab Sample ID: HLCS 380-48652/5**  
**Matrix: Water**  
**Analysis Batch: 48652**

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

Analyte	Spike Added	HLCS Result	HLCS Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	700	706		mg/L		101	80 - 114		

**Lab Sample ID: LCS 380-48652/4**  
**Matrix: Water**  
**Analysis Batch: 48652**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	175	158		mg/L		90	80 - 114		

**Lab Sample ID: MRL 380-48652/2**  
**Matrix: Water**  
**Analysis Batch: 48652**

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Total Dissolved Solids	10.0	15.0		mg/L		150	50 - 150		

# QC Sample Results

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

Job ID: 380-55362-1

## Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: MRL 380-48652/3  
Matrix: Water  
Analysis Batch: 48652

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Total Dissolved Solids	10.0	15.0		mg/L		150	50 - 150

Lab Sample ID: 380-54078-A-76 DU  
Matrix: Water  
Analysis Batch: 48652

Client Sample ID: Duplicate  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	560		555		mg/L		1	10

## Method: SM 4500 F C - Fluoride

Lab Sample ID: MB 380-48702/40  
Matrix: Water  
Analysis Batch: 48702

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

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.050		0.050	mg/L			07/24/23 16:46	1

Lab Sample ID: MB 380-48702/74  
Matrix: Water  
Analysis Batch: 48702

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

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.050		0.050	mg/L			07/24/23 19:16	1

Lab Sample ID: LCS 380-48702/76  
Matrix: Water  
Analysis Batch: 48702

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	1.00	0.964		mg/L		96	90 - 110

Lab Sample ID: LCSD 380-48702/77  
Matrix: Water  
Analysis Batch: 48702

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Fluoride	1.00	0.965		mg/L		96	90 - 110	0	10

Lab Sample ID: MRL 380-48702/41  
Matrix: Water  
Analysis Batch: 48702

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	0.0500	0.0481	J	mg/L		96	50 - 150

# QC Sample Results

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

Job ID: 380-55362-1

## Method: SM 4500 F C - Fluoride (Continued)

**Lab Sample ID: MRL 380-48702/7**  
**Matrix: Water**  
**Analysis Batch: 48702**

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	0.0500	0.0483	J	mg/L		97	50 - 150

**Lab Sample ID: MRL 380-48702/75**  
**Matrix: Water**  
**Analysis Batch: 48702**

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	0.0500	0.0468	J	mg/L		94	50 - 150

**Lab Sample ID: 380-55362-1 MS**  
**Matrix: Water**  
**Analysis Batch: 48702**

**Client Sample ID: HALAWA WELLS UNITS 1 & 2**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Fluoride	0.052		1.00	0.999		mg/L		95	80 - 120

**Lab Sample ID: 380-55362-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 48702**

**Client Sample ID: HALAWA WELLS UNITS 1 & 2**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Fluoride	0.052		1.00	1.00		mg/L		95	80 - 120	0	20

## Method: SM 4500 H+ B - pH

**Lab Sample ID: MB 380-48318/4**  
**Matrix: Water**  
**Analysis Batch: 48318**

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

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.4			SU			07/20/23 13:19	1

**Lab Sample ID: LCS 380-48318/5**  
**Matrix: Water**  
**Analysis Batch: 48318**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH	6.00	6.0		SU		100	98 - 102

**Lab Sample ID: LCSD 380-48318/17**  
**Matrix: Water**  
**Analysis Batch: 48318**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
pH	6.00	6.0		SU		100	98 - 102	0	2

# QC Sample Results

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

Job ID: 380-55362-1

## Method: SM 4500 H+ B - pH (Continued)

Lab Sample ID: 380-55139-AX-1 DU  
Matrix: Water  
Analysis Batch: 48318

Client Sample ID: Duplicate  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	7.9		7.8		SU		1	2

## Method: SM 4500 S2 D - Sulfide, Total

Lab Sample ID: MB 380-48212/1  
Matrix: Water  
Analysis Batch: 48212

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

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	<0.050		0.050	mg/L			07/20/23 14:20	1

Lab Sample ID: LCS 380-48212/4  
Matrix: Water  
Analysis Batch: 48212

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfide	0.250	0.268		mg/L		107	90 - 110

Lab Sample ID: LCSD 380-48212/17  
Matrix: Water  
Analysis Batch: 48212

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Sulfide	0.250	0.266		mg/L		106	90 - 110	1	20

Lab Sample ID: MRL 380-48212/16  
Matrix: Water  
Analysis Batch: 48212

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Sulfide	0.0500	0.0520		mg/L		104	50 - 150

Lab Sample ID: MRL 380-48212/2  
Matrix: Water  
Analysis Batch: 48212

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

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Sulfide	0.0500	0.0580		mg/L		116	50 - 150

Lab Sample ID: 380-55350-J-1 MS  
Matrix: Water  
Analysis Batch: 48212

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
Sulfide	<0.050	F1	0.250	0.108	F1	mg/L		43	80 - 120

# QC Sample Results

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

Job ID: 380-55362-1

## Method: SM 4500 S2 D - Sulfide, Total (Continued)

**Lab Sample ID: 380-55350-J-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 48212**

**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
Sulfide	<0.050	F1	0.250	0.107	F1	mg/L		43	80 - 120	1	20

## Method: 625 Acid/Base/PAH + TICs - EPA 625 Base/Neutral and Acid Organics i

**Lab Sample ID: 108481-B1**  
**Matrix: BlankMatrix**  
**Analysis Batch: O-42022**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: O-42022\_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 03:54	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 03:54	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 03:54	1
2,4,5-Trichlorophenol	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 03:54	1
2,4,6-Trichlorophenol	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 03:54	1
2,4-Dichlorophenol	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 03:54	1
2,4-Dinitrophenol	ND		0.2	0.1	µg/L		07/21/23 00:00	09/01/23 03:54	1
2,6-Dichlorophenol	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 03:54	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 03:54	1
2,6-Di-tert-butyl-4-methylphenol	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 03:54	1
2,6-Di-tert-butylphenol	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 03:54	1
2-Chloronaphthalene	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 03:54	1
2-Chlorophenol	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 03:54	1
2-Methyl-4,6-dinitrophenol	ND		0.2	0.1	µg/L		07/21/23 00:00	09/01/23 03:54	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 03:54	1
2-Methylphenol	ND		0.2	0.1	µg/L		07/21/23 00:00	09/01/23 03:54	1
2-Nitroaniline	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 03:54	1
2-Nitrophenol	ND		0.2	0.1	µg/L		07/21/23 00:00	09/01/23 03:54	1
3+4-Methylphenol	ND		0.2	0.1	µg/L		07/21/23 00:00	09/01/23 03:54	1
3-Nitroaniline	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 03:54	1
4-Bromophenylphenyl ether	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 03:54	1
4-Chloro-3-methylphenol	ND		0.2	0.1	µg/L		07/21/23 00:00	09/01/23 03:54	1
4-Chloroaniline	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 03:54	1
4-Chlorophenylphenyl ether	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 03:54	1
4-Nitroaniline	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 03:54	1
4-Nitrophenol	ND		0.2	0.1	µg/L		07/21/23 00:00	09/01/23 03:54	1
6-tert-butyl-2,4-dimethylphenol	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 03:54	1
Acenaphthene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 03:54	1
Acenaphthylene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 03:54	1
Aniline	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 03:54	1
Anthracene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 03:54	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 03:54	1
Benzidine	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 03:54	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 03:54	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 03:54	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 03:54	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 03:54	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 03:54	1
Benzoic Acid	ND		0.2	0.1	µg/L		07/21/23 00:00	09/01/23 03:54	1
Benzyl Alcohol	ND		0.2	0.1	µg/L		07/21/23 00:00	09/01/23 03:54	1

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# QC Sample Results

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

Job ID: 380-55362-1

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

**Lab Sample ID: 108481-B1**  
**Matrix: BlankMatrix**  
**Analysis Batch: O-42022**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: O-42022\_P**

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Biphenyl	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 03:54	1
Bis(2-Chloroethoxy) methane	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 03:54	1
Bis(2-Chloroethyl) ether	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 03:54	1
Bis(2-Chloroisopropyl) ether	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 03:54	1
Chrysene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 03:54	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 03:54	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 03:54	1
Dibenzofuran	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 03:54	1
Dibenzothiophene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 03:54	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 03:54	1
Fluoranthene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 03:54	1
Fluorene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 03:54	1
Hexachloroethane	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 03:54	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 03:54	1
Naphthalene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 03:54	1
Nitrobenzene	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 03:54	1
N-Nitrosodi-n-propylamine	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 03:54	1
N-Nitrosodiphenylamine	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 03:54	1
Pentachlorophenol	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 03:54	1
Perylene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 03:54	1
Phenanthrene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 03:54	1
Phenol	ND		0.2	0.1	µg/L		07/21/23 00:00	09/01/23 03:54	1
p-tert-Butylphenol	ND		0.1	0.05	µg/L		07/21/23 00:00	09/01/23 03:54	1
Pyrene	ND		0.005	0.001	µg/L		07/21/23 00:00	09/01/23 03:54	1

Surrogate	Blank %Recovery	Blank Qualifier	Limits	Prepared	Analyzed	Dil Fac
(2,4,6-Tribromophenol)	124		30 - 130	07/21/23 00:00	09/01/23 03:54	1
(d10-Acenaphthene)	100		27 - 133	07/21/23 00:00	09/01/23 03:54	1
(d10-Phenanthrene)	99		43 - 129	07/21/23 00:00	09/01/23 03:54	1
(d12-Chrysene)	98		52 - 144	07/21/23 00:00	09/01/23 03:54	1
(d12-Perylene)	103		36 - 161	07/21/23 00:00	09/01/23 03:54	1
(d5-Phenol)	129		0 - 130	07/21/23 00:00	09/01/23 03:54	1
(d8-Naphthalene)	93		25 - 125	07/21/23 00:00	09/01/23 03:54	1

**Lab Sample ID: 108481-BS1**  
**Matrix: BlankMatrix**  
**Analysis Batch: O-42022**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: O-42022\_P**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1-Methylnaphthalene	0.5	0.564		µg/L		113	31 - 128
1-Methylphenanthrene	0.5	0.572		µg/L		114	66 - 127
2,3,5-Trimethylnaphthalene	0.5	0.592		µg/L		118	55 - 122
2,4,5-Trichlorophenol	1	0.749		µg/L		75	30 - 130
2,4,6-Trichlorophenol	1	0.823		µg/L		82	30 - 130
2,4-Dichlorophenol	1	0.771		µg/L		77	51 - 117
2,4-Dinitrophenol	1	0.695		µg/L		69	0 - 152
2,6-Dichlorophenol	0.5	0.383		µg/L		77	30 - 130
2,6-Dimethylnaphthalene	0.5	0.571		µg/L		114	48 - 120

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-55362-1

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

**Lab Sample ID: 108481-BS1**  
**Matrix: BlankMatrix**  
**Analysis Batch: O-42022**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: O-42022\_P**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,6-Di-tert-butyl-4-methylphenol	1	1.04		µg/L		104	50 - 150
2,6-Di-tert-butylphenol	1	0.998		µg/L		100	50 - 150
2-Chloronaphthalene	1	0.836		µg/L		84	53 - 130
2-Chlorophenol	1	0.631		µg/L		63	41 - 120
2-Methyl-4,6-dinitrophenol	1	0.814		µg/L		81	0 - 141
2-Methylnaphthalene	1.5	1.67		µg/L		111	47 - 130
2-Methylphenol	1	0.616		µg/L		62	40 - 117
2-Nitroaniline	1	0.756		µg/L		76	69 - 114
2-Nitrophenol	1	0.632		µg/L		63	40 - 117
3+4-Methylphenol	1	0.644		µg/L		64	0 - 130
3-Nitroaniline	1	0.748		µg/L		75	23 - 137
4-Bromophenylphenyl ether	1	0.951		µg/L		95	61 - 132
4-Chloro-3-methylphenol	1	0.665		µg/L		67	51 - 128
4-Chloroaniline	1	0.67		µg/L		67	50 - 150
4-Chlorophenylphenyl ether	1	0.962		µg/L		96	63 - 130
4-Nitroaniline	1	0.738		µg/L		74	10 - 159
4-Nitrophenol	1	0.944		µg/L		94	10 - 164
6-tert-butyl-2,4-dimethylphenol	1	0.935		µg/L		94	50 - 150
Acenaphthene	1.5	1.73		µg/L		115	53 - 131
Acenaphthylene	1.5	1.89		µg/L		126	43 - 140
Aniline	1	0.543		µg/L		54	50 - 150
Anthracene	1.5	1.67		µg/L		111	58 - 135
Benz[a]anthracene	1.5	1.7		µg/L		113	55 - 145
Benzidine	1	0.00381		µg/L		0	0 - 125
Benzo[a]pyrene	1.5	1.73		µg/L		115	51 - 143
Benzo[b]fluoranthene	1.5	1.74		µg/L		116	46 - 165
Benzo[e]pyrene	0.5	0.551		µg/L		110	42 - 152
Benzo[g,h,i]perylene	1.5	1.73		µg/L		115	63 - 133
Benzo[k]fluoranthene	1.5	1.69		µg/L		113	56 - 145
Benzoic Acid	1	0.163		µg/L		16	2 - 145
Benzyl Alcohol	1	0.616		µg/L		62	43 - 148
Biphenyl	0.5	0.565		µg/L		113	56 - 119
Bis(2-Chloroethoxy) methane	1	0.663		µg/L		66	66 - 122
Bis(2-Chloroethyl) ether	1	0.553		µg/L		55	43 - 127
Bis(2-Chloroisopropyl) ether	1	0.784		µg/L		78	49 - 128
Chrysene	1.5	1.56		µg/L		104	56 - 141
Dibenz[a,h]anthracene	1.5	1.86		µg/L		124	55 - 150
Dibenzo[a,l]pyrene	0.5	0.455		µg/L		91	50 - 150
Dibenzofuran	1	0.62		µg/L		62	50 - 150
Dibenzothiophene	0.5	0.563		µg/L		113	46 - 126
Disalicylidenepranediamine	50	41.9		µg/L		84	50 - 150
Fluoranthene	1.5	1.78		µg/L		119	60 - 146
Fluorene	1.5	1.78		µg/L		119	58 - 131
Hexachloroethane	1	0.816		µg/L		82	27 - 130
Indeno[1,2,3-cd]pyrene	1.5	1.81		µg/L		121	50 - 151
Naphthalene	1.5	1.55		µg/L		103	41 - 126
Nitrobenzene	1	0.633		µg/L		63	54 - 111
N-Nitrosodi-n-propylamine	1	0.696		µg/L		70	61 - 152
N-Nitrosodiphenylamine	1	0.998		µg/L		100	49 - 142

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# QC Sample Results

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

Job ID: 380-55362-1

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

**Lab Sample ID: 108481-BS1**  
**Matrix: BlankMatrix**  
**Analysis Batch: O-42022**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: O-42022\_P**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Pentachlorophenol	1	0.678		µg/L		68	36 - 111
Perylene	0.5	0.578		µg/L		116	48 - 141
Phenanthrene	1.5	1.65		µg/L		110	67 - 127
Phenol	1	0.533		µg/L		53	29 - 114
p-tert-Butylphenol	1	1.07		µg/L		107	50 - 150
Pyrene	1.5	1.79		µg/L		119	54 - 156

Surrogate	LCS %Recovery	LCS Qualifier	Limits
(2,4,6-Tribromophenol)	101		30 - 130
(d10-Acenaphthene)	109		27 - 133
(d10-Phenanthrene)	104		43 - 129
(d12-Chrysene)	100		52 - 144
(d12-Perylene)	106		36 - 161
(d5-Phenol)	104		0 - 130
(d8-Naphthalene)	99		25 - 125

**Lab Sample ID: 108481-BS2**  
**Matrix: BlankMatrix**  
**Analysis Batch: O-42022**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: O-42022\_P**

Analyte	Spike Added	LCS DUP Result	LCS DUP Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1-Methylnaphthalene	0.5	0.547		µg/L		109	31 - 128	4	30
1-Methylphenanthrene	0.5	0.568		µg/L		114	66 - 127	0	30
2,3,5-Trimethylnaphthalene	0.5	0.581		µg/L		116	55 - 122	2	30
2,4,5-Trichlorophenol	1	0.753		µg/L		75	30 - 130	0	30
2,4,6-Trichlorophenol	1	0.814		µg/L		81	30 - 130	1	30
2,4-Dichlorophenol	1	0.746		µg/L		75	51 - 117	3	30
2,4-Dinitrophenol	1	0.727		µg/L		73	0 - 152	4	30
2,6-Dichlorophenol	0.5	0.371		µg/L		74	30 - 130	4	30
2,6-Dimethylnaphthalene	0.5	0.565		µg/L		113	48 - 120	1	30
2,6-Di-tert-butyl-4-methylphenol	1	1.04		µg/L		104	50 - 150	0	30
2,6-Di-tert-butylphenol	1	0.961		µg/L		96	50 - 150	4	30
2-Chloronaphthalene	1	0.816		µg/L		82	53 - 130	2	30
2-Chlorophenol	1	0.591		µg/L		59	41 - 120	7	30
2-Methyl-4,6-dinitrophenol	1	0.828		µg/L		83	0 - 141	2	30
2-Methylnaphthalene	1.5	1.62		µg/L		108	47 - 130	2	30
2-Methylphenol	1	0.6		µg/L		60	40 - 117	3	30
2-Nitroaniline	1	0.775		µg/L		77	69 - 114	3	30
2-Nitrophenol	1	0.619		µg/L		62	40 - 117	2	30
3+4-Methylphenol	1	0.614		µg/L		61	0 - 130	5	30
3-Nitroaniline	1	0.757		µg/L		76	23 - 137	1	30
4-Bromophenylphenyl ether	1	0.944		µg/L		94	61 - 132	1	30
4-Chloro-3-methylphenol	1	0.664		µg/L		66	51 - 128	0	30
4-Chloroaniline	1	0.657		µg/L		66	50 - 150	2	30
4-Chlorophenylphenyl ether	1	0.944		µg/L		94	63 - 130	2	30
4-Nitroaniline	1	0.773		µg/L		77	10 - 159	4	30
4-Nitrophenol	1	0.935		µg/L		94	10 - 164	0	30
6-tert-butyl-2,4-dimethylphenol	1	0.925		µg/L		93	50 - 150	2	30

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-55362-1

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

**Lab Sample ID: 108481-BS2**  
**Matrix: BlankMatrix**  
**Analysis Batch: O-42022**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: O-42022\_P**

Analyte	Spike Added	LCS DUP Result	LCS DUP Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Acenaphthene	1.5	1.69		µg/L		113	53 - 131	2	30
Acenaphthylene	1.5	1.86		µg/L		124	43 - 140	2	30
Aniline	1	0.502		µg/L		50	50 - 150	8	30
Anthracene	1.5	1.65		µg/L		110	58 - 135	1	30
Benz[a]anthracene	1.5	1.71		µg/L		114	55 - 145	1	30
Benzidine	1	0.00388		µg/L		0	0 - 125	0	30
Benzo[a]pyrene	1.5	1.72		µg/L		115	51 - 143	0	30
Benzo[b]fluoranthene	1.5	1.72		µg/L		115	46 - 165	1	30
Benzo[e]pyrene	0.5	0.546		µg/L		109	42 - 152	1	30
Benzo[g,h,i]perylene	1.5	1.7		µg/L		113	63 - 133	2	30
Benzo[k]fluoranthene	1.5	1.67		µg/L		111	56 - 145	2	30
Benzoic Acid	1	0.138		µg/L		14	2 - 145	13	30
Benzyl Alcohol	1	0.592		µg/L		59	43 - 148	5	30
Biphenyl	0.5	0.556		µg/L		111	56 - 119	2	30
Bis(2-Chloroethoxy) methane	1	0.655		µg/L		66	66 - 122	0	30
Bis(2-Chloroethyl) ether	1	0.526		µg/L		53	43 - 127	4	30
Bis(2-Chloroisopropyl) ether	1	0.708		µg/L		71	49 - 128	9	30
Chrysene	1.5	1.56		µg/L		104	56 - 141	1	30
Dibenz[a,h]anthracene	1.5	1.87		µg/L		125	55 - 150	1	30
Dibenz[a,l]pyrene	0.5	0.455		µg/L		91	50 - 150	0	30
Dibenzofuran	1	0.669		µg/L		67	50 - 150	8	30
Dibenzothiophene	0.5	0.555		µg/L		111	46 - 126	2	30
Disalicylidenepropanediamine	50	49.8		µg/L		100	50 - 150	17	30
Fluoranthene	1.5	1.77		µg/L		118	60 - 146	1	30
Fluorene	1.5	1.78		µg/L		119	58 - 131	0	30
Hexachloroethane	1	0.771		µg/L		77	27 - 130	6	30
Indeno[1,2,3-cd]pyrene	1.5	1.81		µg/L		121	50 - 151	0	30
Naphthalene	1.5	1.5		µg/L		100	41 - 126	3	30
Nitrobenzene	1	0.623		µg/L		62	54 - 111	2	30
N-Nitrosodi-n-propylamine	1	0.68		µg/L		68	61 - 152	3	30
N-Nitrosodiphenylamine	1	0.989		µg/L		99	49 - 142	1	30
Pentachlorophenol	1	0.683		µg/L		68	36 - 111	0	30
Perylene	0.5	0.569		µg/L		114	48 - 141	2	30
Phenanthrene	1.5	1.62		µg/L		108	67 - 127	2	30
Phenol	1	0.495		µg/L		50	29 - 114	6	30
p-tert-Butylphenol	1	1.07		µg/L		107	50 - 150	0	30
Pyrene	1.5	1.77		µg/L		118	54 - 156	1	30

Surrogate	LCS DUP %Recovery	LCS DUP Qualifier	Limits
(2,4,6-Tribromophenol)	97		30 - 130
(d10-Acenaphthene)	107		27 - 133
(d10-Phenanthrene)	105		43 - 129
(d12-Chrysene)	101		52 - 144
(d12-Perylene)	107		36 - 161
(d5-Phenol)	84		0 - 130
(d8-Naphthalene)	96		25 - 125

# QC Sample Results

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

Job ID: 380-55362-1

## Method: 8015 Ethanol - SW846 8015B Gasoline Range Organics

Lab Sample ID: 23MEG005WB  
Matrix: WATER  
Analysis Batch: 23MEG005W

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
ETHANOL	ND	U	2000		ug/L			07/21/23 16:08	1

Lab Sample ID: 23MEG005WL  
Matrix: WATER  
Analysis Batch: 23MEG005W

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
ETHANOL	10000	9060		ug/L		91	60 - 130

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

Lab Sample ID: 23VG39G12B  
Matrix: WATER  
Analysis Batch: 23VG39G12

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GASOLINE	ND	U	0.02		mg/L			07/20/23 17:48	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
BROMOFLUOROBENZENE					07/20/23 17:48	1

Lab Sample ID: 23VG39G12L  
Matrix: WATER  
Analysis Batch: 23VG39G12

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
GASOLINE	0.5	0.441		mg/L		88	60 - 130

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

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

Lab Sample ID: 23DSG037WB  
Matrix: WATER  
Analysis Batch: 23DSG037W

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			07/28/23 19:29	1
JP5	ND	U	0.05		mg/L			07/28/23 19:29	1
JP8	ND	U	0.05		mg/L			07/28/23 19:29	1
MOTOR OIL	ND	U	0.05		mg/L			07/28/23 19:29	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
BROMOBENZENE					07/28/23 19:29	1
HEXACOSANE					07/28/23 19:29	1

Eurofins Eaton Analytical Pomona

# QC Sample Results

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

Job ID: 380-55362-1

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

**Lab Sample ID: 23DSG037WL**  
**Matrix: WATER**  
**Analysis Batch: 23DSG037W**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
DIESEL	2.5	2.13		mg/L		85	50 - 130
	<i>LCS</i>	<i>LCS</i>					
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
BROMOBENZENE	66		60 - 130				
HEXACOSANE	87		60 - 130				

**Lab Sample ID: 23J5G037WL**  
**Matrix: WATER**  
**Analysis Batch: 23DSG037W**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
JP5	2.5	1.82		mg/L		73	30 - 160
	<i>LCS</i>	<i>LCS</i>					
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
BROMOBENZENE	74		60 - 130				
HEXACOSANE	88		60 - 130				

**Lab Sample ID: 23J8G037WL**  
**Matrix: WATER**  
**Analysis Batch: 23DSG037W**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
JP8	2.5	2.7		mg/L		108	30 - 160
	<i>LCS</i>	<i>LCS</i>					
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
BROMOBENZENE	94		60 - 130				
HEXACOSANE	86		60 - 130				

# QC Association Summary

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

Job ID: 380-55362-1

## GC/MS VOA

### Analysis Batch: 48215

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-55362-1	HALAWA WELLS UNITS 1 & 2	Total/NA	Water	524.2	
380-55362-2	TB: HALAWA WELLS UNITS 1 & 2	Total/NA	Water	524.2	
MB 380-48215/5	Method Blank	Total/NA	Water	524.2	
LCS 380-48215/2	Lab Control Sample	Total/NA	Water	524.2	
LCSD 380-48215/3	Lab Control Sample Dup	Total/NA	Water	524.2	
MRL 380-48215/4	Lab Control Sample	Total/NA	Water	524.2	

### Analysis Batch: 48949

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-55362-1	HALAWA WELLS UNITS 1 & 2	Total/NA	Water	524.2	
380-55362-2	TB: HALAWA WELLS UNITS 1 & 2	Total/NA	Water	524.2	
MB 380-48949/8	Method Blank	Total/NA	Water	524.2	
LCS 380-48949/5	Lab Control Sample	Total/NA	Water	524.2	
LCSD 380-48949/6	Lab Control Sample Dup	Total/NA	Water	524.2	
MRL 380-48949/3	Lab Control Sample	Total/NA	Water	524.2	
MRL 380-48949/4	Lab Control Sample	Total/NA	Water	524.2	

### Analysis Batch: 49405

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-55362-2	TB: HALAWA WELLS UNITS 1 & 2	Total/NA	Water	524.2	
MB 380-49405/5	Method Blank	Total/NA	Water	524.2	
LCS 380-49405/3	Lab Control Sample	Total/NA	Water	524.2	
LCSD 380-49405/4	Lab Control Sample Dup	Total/NA	Water	524.2	

### Analysis Batch: 49627

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-55362-1	HALAWA WELLS UNITS 1 & 2	Total/NA	Water	524.2	
MB 380-49627/15	Method Blank	Total/NA	Water	524.2	
LCS 380-49627/11	Lab Control Sample	Total/NA	Water	524.2	
LCSD 380-49627/12	Lab Control Sample Dup	Total/NA	Water	524.2	
MRL 380-49627/13	Lab Control Sample	Total/NA	Water	524.2	
MRL 380-49627/14	Lab Control Sample	Total/NA	Water	524.2	

### Analysis Batch: 49692

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-55362-1	HALAWA WELLS UNITS 1 & 2	Total/NA	Water	524.2	
380-55362-2	TB: HALAWA WELLS UNITS 1 & 2	Total/NA	Water	524.2	

## GC/MS Semi VOA

### Prep Batch: 48256

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-55362-1	HALAWA WELLS UNITS 1 & 2	Total/NA	Water	525.2	
MB 380-48256/21-A	Method Blank	Total/NA	Water	525.2	
LCS 380-48256/23-A	Lab Control Sample	Total/NA	Water	525.2	
LCSD 380-48256/24-A	Lab Control Sample Dup	Total/NA	Water	525.2	
MRL 380-48256/22-A	Lab Control Sample	Total/NA	Water	525.2	
380-55418-AO-1-B MS	Matrix Spike	Total/NA	Water	525.2	
380-55418-AO-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	525.2	

# QC Association Summary

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

Job ID: 380-55362-1

## GC/MS Semi VOA

### Analysis Batch: 48488

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-55362-1	HALAWA WELLS UNITS 1 & 2	Total/NA	Water	525.2	48256
MB 380-48256/21-A	Method Blank	Total/NA	Water	525.2	48256
LCS 380-48256/23-A	Lab Control Sample	Total/NA	Water	525.2	48256
LCSD 380-48256/24-A	Lab Control Sample Dup	Total/NA	Water	525.2	48256
MRL 380-48256/22-A	Lab Control Sample	Total/NA	Water	525.2	48256
380-55418-AO-1-B MS	Matrix Spike	Total/NA	Water	525.2	48256
380-55418-AO-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	525.2	48256

## GC Semi VOA

### Prep Batch: 48321

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-55362-1	HALAWA WELLS UNITS 1 & 2	Total/NA	Water	505	
MBL 380-48321/4-A	Method Blank	Total/NA	Water	505	
MRL 380-48321/2-A	Lab Control Sample	Total/NA	Water	505	
MRL 380-48321/3-A	Lab Control Sample	Total/NA	Water	505	
380-55418-J-1-A MS	Matrix Spike	Total/NA	Water	505	
380-55418-K-1-A MS	Matrix Spike	Total/NA	Water	505	
380-55418-M-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	505	
380-55418-N-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	505	
380-55450-Q-3-A MS	Matrix Spike	Total/NA	Water	505	
380-55450-R-3-A MS	Matrix Spike	Total/NA	Water	505	

### Prep Batch: 48695

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-55362-1	HALAWA WELLS UNITS 1 & 2	Total/NA	Water	504.1	
380-55362-2	TB: HALAWA WELLS UNITS 1 & 2	Total/NA	Water	504.1	
MBL 380-48695/4-A	Method Blank	Total/NA	Water	504.1	
LCS 380-48695/3-A	Lab Control Sample	Total/NA	Water	504.1	
MRL 380-48695/1-A	Lab Control Sample	Total/NA	Water	504.1	
MRL 380-48695/2-A	Lab Control Sample	Total/NA	Water	504.1	
380-55132-K-1-B MS	Matrix Spike	Total/NA	Water	504.1	
380-55132-K-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	504.1	
380-55132-J-4-A DU	Duplicate	Total/NA	Water	504.1	

### Analysis Batch: 48824

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-55362-1	HALAWA WELLS UNITS 1 & 2	Total/NA	Water	505	48321
MBL 380-48321/4-A	Method Blank	Total/NA	Water	505	48321
MRL 380-48321/2-A	Lab Control Sample	Total/NA	Water	505	48321
MRL 380-48321/3-A	Lab Control Sample	Total/NA	Water	505	48321
380-55418-J-1-A MS	Matrix Spike	Total/NA	Water	505	48321
380-55418-K-1-A MS	Matrix Spike	Total/NA	Water	505	48321
380-55418-M-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	505	48321
380-55418-N-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	505	48321
380-55450-Q-3-A MS	Matrix Spike	Total/NA	Water	505	48321
380-55450-R-3-A MS	Matrix Spike	Total/NA	Water	505	48321

### Analysis Batch: 48950

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-55362-1	HALAWA WELLS UNITS 1 & 2	Total/NA	Water	504.1	48695



# QC Association Summary

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

Job ID: 380-55362-1

## GC Semi VOA (Continued)

### Analysis Batch: 48950 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-55362-2	TB: HALAWA WELLS UNITS 1 & 2	Total/NA	Water	504.1	48695
MBL 380-48695/4-A	Method Blank	Total/NA	Water	504.1	48695
LCS 380-48695/3-A	Lab Control Sample	Total/NA	Water	504.1	48695
MRL 380-48695/1-A	Lab Control Sample	Total/NA	Water	504.1	48695
MRL 380-48695/2-A	Lab Control Sample	Total/NA	Water	504.1	48695
380-55132-K-1-B MS	Matrix Spike	Total/NA	Water	504.1	48695
380-55132-K-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	504.1	48695
380-55132-J-4-A DU	Duplicate	Total/NA	Water	504.1	48695

## HPLC/IC

### Analysis Batch: 48146

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-55362-1	HALAWA WELLS UNITS 1 & 2	Total/NA	Water	300.0	
MB 380-48146/4	Method Blank	Total/NA	Water	300.0	
LCS 380-48146/7	Lab Control Sample	Total/NA	Water	300.0	
LCSD 380-48146/8	Lab Control Sample Dup	Total/NA	Water	300.0	
MRL 380-48146/5	Lab Control Sample	Total/NA	Water	300.0	
MRL 380-48146/6	Lab Control Sample	Total/NA	Water	300.0	
380-55345-AY-1 MS	Matrix Spike	Total/NA	Water	300.0	
380-55345-AY-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

### Analysis Batch: 48147

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-55362-1	HALAWA WELLS UNITS 1 & 2	Total/NA	Water	300.0	
MB 380-48147/4	Method Blank	Total/NA	Water	300.0	
LCS 380-48147/7	Lab Control Sample	Total/NA	Water	300.0	
LCSD 380-48147/8	Lab Control Sample Dup	Total/NA	Water	300.0	
MRL 380-48147/5	Lab Control Sample	Total/NA	Water	300.0	
MRL 380-48147/6	Lab Control Sample	Total/NA	Water	300.0	
380-55345-AY-1 MS	Matrix Spike	Total/NA	Water	300.0	
380-55345-AY-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

### Analysis Batch: 49344

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 380-49344/4	Method Blank	Total/NA	Water	300.0	
LCS 380-49344/5	Lab Control Sample	Total/NA	Water	300.0	
LCSD 380-49344/6	Lab Control Sample Dup	Total/NA	Water	300.0	
MRL 380-49344/3	Lab Control Sample	Total/NA	Water	300.0	
380-56013-BM-1 MS	Matrix Spike	Total/NA	Water	300.0	
380-56013-BM-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

### Analysis Batch: 49801

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-55362-1	HALAWA WELLS UNITS 1 & 2	Total/NA	Water	300.0	
MB 380-49801/4	Method Blank	Total/NA	Water	300.0	
LCS 380-49801/5	Lab Control Sample	Total/NA	Water	300.0	
LCSD 380-49801/6	Lab Control Sample Dup	Total/NA	Water	300.0	
MRL 380-49801/3	Lab Control Sample	Total/NA	Water	300.0	
380-54822-A-10 MS	Matrix Spike	Total/NA	Water	300.0	
380-54822-A-10 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

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# QC Association Summary

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

Job ID: 380-55362-1

## Metals

### Analysis Batch: 48219

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-55362-1	HALAWA WELLS UNITS 1 & 2	Total/NA	Water	200.7 Rev 4.4	
MB 380-48219/18	Method Blank	Total/NA	Water	200.7 Rev 4.4	
LCS 380-48219/20	Lab Control Sample	Total/NA	Water	200.7 Rev 4.4	
LCSD 380-48219/21	Lab Control Sample Dup	Total/NA	Water	200.7 Rev 4.4	
LLCS 380-48219/19	Lab Control Sample	Total/NA	Water	200.7 Rev 4.4	
380-55337-A-6 MS	Matrix Spike	Total/NA	Water	200.7 Rev 4.4	
380-55337-A-6 MSD	Matrix Spike Duplicate	Total/NA	Water	200.7 Rev 4.4	

### Prep Batch: 67288

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-55362-1	HALAWA WELLS UNITS 1 & 2	Total/NA	Water	245.1	
MB 810-67288/1-A	Method Blank	Total/NA	Water	245.1	
LCS 810-67288/3-A	Lab Control Sample	Total/NA	Water	245.1	
380-55132-AV-1-B MS	Matrix Spike	Total/NA	Water	245.1	
380-55132-AV-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	

### Analysis Batch: 67330

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-55362-1	HALAWA WELLS UNITS 1 & 2	Total/NA	Water	245.1	67288
MB 810-67288/1-A	Method Blank	Total/NA	Water	245.1	67288
LCS 810-67288/3-A	Lab Control Sample	Total/NA	Water	245.1	67288
380-55132-AV-1-B MS	Matrix Spike	Total/NA	Water	245.1	67288
380-55132-AV-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	245.1	67288

### Analysis Batch: 69217

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-55362-1	HALAWA WELLS UNITS 1 & 2	Total/NA	Water	200.8	
MB 810-69217/14	Method Blank	Total/NA	Water	200.8	
LCS 810-69217/15	Lab Control Sample	Total/NA	Water	200.8	
LLCS 810-69217/11	Lab Control Sample	Total/NA	Water	200.8	
LLCS 810-69217/12	Lab Control Sample	Total/NA	Water	200.8	
LLCS 810-69217/13	Lab Control Sample	Total/NA	Water	200.8	
810-72359-A-15 MS	Matrix Spike	Total/NA	Water	200.8	
810-72359-A-15 MSD	Matrix Spike Duplicate	Total/NA	Water	200.8	

## General Chemistry

### Analysis Batch: 48212

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-55362-1	HALAWA WELLS UNITS 1 & 2	Total/NA	Water	SM 4500 S2 D	
MB 380-48212/1	Method Blank	Total/NA	Water	SM 4500 S2 D	
LCS 380-48212/4	Lab Control Sample	Total/NA	Water	SM 4500 S2 D	
LCSD 380-48212/17	Lab Control Sample Dup	Total/NA	Water	SM 4500 S2 D	
MRL 380-48212/16	Lab Control Sample	Total/NA	Water	SM 4500 S2 D	
MRL 380-48212/2	Lab Control Sample	Total/NA	Water	SM 4500 S2 D	
380-55350-J-1 MS	Matrix Spike	Total/NA	Water	SM 4500 S2 D	
380-55350-J-1 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 4500 S2 D	

### Analysis Batch: 48315

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-55362-1	HALAWA WELLS UNITS 1 & 2	Total/NA	Water	SM 2320B	

Eurofins Eaton Analytical Pomona

# QC Association Summary

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

Job ID: 380-55362-1

## General Chemistry (Continued)

### Analysis Batch: 48315 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 380-48315/1	Method Blank	Total/NA	Water	SM 2320B	
LCS 380-48315/3	Lab Control Sample	Total/NA	Water	SM 2320B	
LCSD 380-48315/18	Lab Control Sample Dup	Total/NA	Water	SM 2320B	
LLCS 380-48315/4	Lab Control Sample	Total/NA	Water	SM 2320B	
MRL 380-48315/2	Lab Control Sample	Total/NA	Water	SM 2320B	
380-55139-AX-1 MS	Matrix Spike	Total/NA	Water	SM 2320B	
380-55139-AX-1 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 2320B	
380-55139-AX-1 DU	Duplicate	Total/NA	Water	SM 2320B	

### Analysis Batch: 48317

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-55362-1	HALAWA WELLS UNITS 1 & 2	Total/NA	Water	SM 2510B	
MB 380-48317/2	Method Blank	Total/NA	Water	SM 2510B	
LCS 380-48317/4	Lab Control Sample	Total/NA	Water	SM 2510B	
LCSD 380-48317/16	Lab Control Sample Dup	Total/NA	Water	SM 2510B	
MRL 380-48317/3	Lab Control Sample	Total/NA	Water	SM 2510B	
380-55139-AX-1 DU	Duplicate	Total/NA	Water	SM 2510B	

### Analysis Batch: 48318

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-55362-1	HALAWA WELLS UNITS 1 & 2	Total/NA	Water	SM 4500 H+ B	
MB 380-48318/4	Method Blank	Total/NA	Water	SM 4500 H+ B	
LCS 380-48318/5	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
LCSD 380-48318/17	Lab Control Sample Dup	Total/NA	Water	SM 4500 H+ B	
380-55139-AX-1 DU	Duplicate	Total/NA	Water	SM 4500 H+ B	

### Analysis Batch: 48652

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-55362-1	HALAWA WELLS UNITS 1 & 2	Total/NA	Water	SM 2540C	
MB 380-48652/1	Method Blank	Total/NA	Water	SM 2540C	
HLCS 380-48652/5	Lab Control Sample	Total/NA	Water	SM 2540C	
LCS 380-48652/4	Lab Control Sample	Total/NA	Water	SM 2540C	
MRL 380-48652/2	Lab Control Sample	Total/NA	Water	SM 2540C	
MRL 380-48652/3	Lab Control Sample	Total/NA	Water	SM 2540C	
380-54078-A-76 DU	Duplicate	Total/NA	Water	SM 2540C	

### Analysis Batch: 48702

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-55362-1	HALAWA WELLS UNITS 1 & 2	Total/NA	Water	SM 4500 F C	
MB 380-48702/40	Method Blank	Total/NA	Water	SM 4500 F C	
MB 380-48702/74	Method Blank	Total/NA	Water	SM 4500 F C	
LCS 380-48702/76	Lab Control Sample	Total/NA	Water	SM 4500 F C	
LCSD 380-48702/77	Lab Control Sample Dup	Total/NA	Water	SM 4500 F C	
MRL 380-48702/41	Lab Control Sample	Total/NA	Water	SM 4500 F C	
MRL 380-48702/7	Lab Control Sample	Total/NA	Water	SM 4500 F C	
MRL 380-48702/75	Lab Control Sample	Total/NA	Water	SM 4500 F C	
380-55362-1 MS	HALAWA WELLS UNITS 1 & 2	Total/NA	Water	SM 4500 F C	
380-55362-1 MSD	HALAWA WELLS UNITS 1 & 2	Total/NA	Water	SM 4500 F C	

# QC Association Summary

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

Job ID: 380-55362-1

## Subcontract

### Analysis Batch: O-42022

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-55362-1	HALAWA WELLS UNITS 1 & 2	Total/NA	Water	625 Acid/Base/PAH + TICs	O-42022_P
108481-B1	Method Blank	Total/NA	BlankMatrix	625 Acid/Base/PAH + TICs	O-42022_P
108481-BS1	Lab Control Sample	Total/NA	BlankMatrix	625 Acid/Base/PAH + TICs	O-42022_P
108481-BS2	Lab Control Sample Dup	Total/NA	BlankMatrix	625 Acid/Base/PAH + TICs	O-42022_P

### Analysis Batch: 23DSG037W

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-55362-1	HALAWA WELLS UNITS 1 & 2	Total/NA	Water	8015 LL DRO/MRO/JP5/J P8	
23DSG037WB	Method Blank	Total/NA	WATER	8015 LL DRO/MRO/JP5/J P8	
23DSG037WL	Lab Control Sample	Total/NA	WATER	8015 LL DRO/MRO/JP5/J P8	
23J5G037WL	Lab Control Sample	Total/NA	WATER	8015 LL DRO/MRO/JP5/J P8	
23J8G037WL	Lab Control Sample	Total/NA	WATER	8015 LL DRO/MRO/JP5/J P8	

### Analysis Batch: 23MEG005W

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-55362-1	HALAWA WELLS UNITS 1 & 2	Total/NA	Water	8015 Ethanol	
23MEG005WB	Method Blank	Total/NA	WATER	8015 Ethanol	
23MEG005WL	Lab Control Sample	Total/NA	WATER	8015 Ethanol	

### Analysis Batch: 23VG39G12

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-55362-1	HALAWA WELLS UNITS 1 & 2	Total/NA	Water	8015 Gas (Purgeable) LL (EAL)	
380-55362-2	TB: HALAWA WELLS UNITS 1 & 2	Total/NA	Water	8015 Gas (Purgeable) LL (EAL)	
23VG39G12B	Method Blank	Total/NA	WATER	8015 Gas (Purgeable) LL (EAL)	
23VG39G12L	Lab Control Sample	Total/NA	WATER	8015 Gas (Purgeable) LL (EAL)	

### Prep Batch: O-42022\_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-55362-1	HALAWA WELLS UNITS 1 & 2	Total/NA	Water	EPA_625	
108481-B1	Method Blank	Total/NA	BlankMatrix	EPA_625	

Eurofins Eaton Analytical Pomona

# QC Association Summary

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

Job ID: 380-55362-1

## Subcontract (Continued)

### Prep Batch: O-42022\_P (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
108481-BS1	Lab Control Sample	Total/NA	BlankMatrix	EPA_625	
108481-BS2	Lab Control Sample Dup	Total/NA	BlankMatrix	EPA_625	

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

# Lab Chronicle

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

Job ID: 380-55362-1

**Client Sample ID: HALAWA WELLS UNITS 1 & 2**

**Lab Sample ID: 380-55362-1**

**Date Collected: 07/18/23 09:00**

**Matrix: Water**

**Date Received: 07/19/23 10:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	524.2		1	49627	P3EE	EA POM	07/31/23 20:56
Total/NA	Analysis	524.2		1	48215	Q6AD	EA POM	07/20/23 20:57
Total/NA	Analysis	524.2		1	48949	Q6AD	EA POM	07/28/23 01:19
Total/NA	Analysis	524.2		1	49692	NC	EA POM	08/01/23 13:05
Total/NA	Prep	525.2			48256	N8NE	EA POM	07/21/23 14:06
Total/NA	Analysis	525.2		1	48488	Q8LA	EA POM	07/23/23 11:49
Total/NA	Prep	504.1			48695	K9GY	EA POM	07/25/23 13:05 - 07/25/23 14:09 <sup>1</sup>
Total/NA	Analysis	504.1		1	48950	K9GY	EA POM	07/25/23 21:36
Total/NA	Prep	505			48321	DR5R	EA POM	07/21/23 13:48 - 07/21/23 15:12 <sup>1</sup>
Total/NA	Analysis	505		1	48824	ULRL	EA POM	07/21/23 20:18
Total/NA	Analysis	300.0		5	48146	VB9B	EA POM	07/19/23 19:27
Total/NA	Analysis	300.0		5	48147	VB9B	EA POM	07/19/23 19:27
Total/NA	Analysis	300.0		5	49801	UNJR	EA POM	08/01/23 02:19
Total/NA	Analysis	200.7 Rev 4.4		1	48219	J9ZD	EA POM	07/20/23 15:02
Total/NA	Analysis	200.8		1	69217	NB	EA SB	08/10/23 16:34
Total/NA	Prep	245.1			67288	AC	EA SB	07/27/23 12:00
Total/NA	Analysis	245.1		1	67330	AC	EA SB	07/27/23 21:01
Total/NA	Analysis	SM 2320B		1	48315	D5MQ	EA POM	07/20/23 16:35
Total/NA	Analysis	SM 2510B		1	48317	D5MQ	EA POM	07/20/23 16:35
Total/NA	Analysis	SM 2540C		1	48652	XLG4	EA POM	07/24/23 22:22
Total/NA	Analysis	SM 4500 F C		1	48702	D5MQ	EA POM	07/24/23 19:36
Total/NA	Analysis	SM 4500 H+ B		1	48318	D5MQ	EA POM	07/20/23 16:35
Total/NA	Analysis	SM 4500 S2 D		1	48212	MH2L	EA POM	07/20/23 14:20
Total/NA	Prep	EPA_625		1	O-42022_P			07/21/23 00:00
Total/NA	Analysis	625 Acid/Base/PAH + TICs		1	O-42022_YC			09/01/23 12:54
Total/NA	Analysis	8015 Ethanol		1	23MEG005W	DBaren		07/21/23 17:39
Total/NA	Analysis	8015 Gas (Purgeable) LL (EAL)		1	23VG39G12	SCerva		07/20/23 22:02
Total/NA	Analysis	8015 LL DRO/MRO/JP5/JP8		1	23DSG037W	SDees		07/28/23 22:18

**Client Sample ID: TB: HALAWA WELLS UNITS 1 & 2**

**Lab Sample ID: 380-55362-2**

**Date Collected: 07/18/23 09:00**

**Matrix: Water**

**Date Received: 07/19/23 10:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	524.2		1	49405	P3EE	EA POM	07/29/23 08:18
Total/NA	Analysis	524.2		1	48215	Q6AD	EA POM	07/20/23 21:21
Total/NA	Analysis	524.2		1	48949	Q6AD	EA POM	07/28/23 01:41
Total/NA	Analysis	524.2		1	49692	NC	EA POM	08/01/23 13:05
Total/NA	Prep	504.1			48695	K9GY	EA POM	07/25/23 09:22 - 07/25/23 14:09 <sup>1</sup>
Total/NA	Analysis	504.1		1	48950	K9GY	EA POM	07/25/23 22:08

Eurofins Eaton Analytical Pomona

# Lab Chronicle

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

Job ID: 380-55362-1

**Client Sample ID: TB: HALAWA WELLS UNITS 1 & 2**

**Lab Sample ID: 380-55362-2**

**Date Collected: 07/18/23 09:00**

**Matrix: Water**

**Date Received: 07/19/23 10:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015 Gas (Purgeable) LL (EAL)		1	23VG39G12	SCerva		07/20/23 22:38

<sup>1</sup> This procedure uses a method stipulated length of time for the process. Both start and end times are displayed.

### 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

EA SB = Eurofins Eaton Analytical South Bend, 110 S Hill Street, South Bend, IN 46617, TEL (574)233-4777



# Accreditation/Certification Summary

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

Job ID: 380-55362-1

## 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	01-31-24

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
505	505	Water	Polychlorinated biphenyls, Total
524.2		Water	1,1,1,2-Tetrachloroethane
524.2		Water	1,1,2,2-Tetrachloroethane
524.2		Water	1,1-Dichloroethane
524.2		Water	1,1-Dichloropropene
524.2		Water	1,2,3-Trichlorobenzene
524.2		Water	1,2,3-Trichloropropane
524.2		Water	1,2,4-Trimethy benzene
524.2		Water	1,3,5-Trimethy benzene
524.2		Water	1,3-Dichloropropane
524.2		Water	1,3-Dichloropropene, Total
524.2		Water	2,2-Dichloropropane
524.2		Water	2-Butanone (MEK)
524.2		Water	4-Methyl-2-pentanone (MIBK)
524.2		Water	Acetone
524.2		Water	Bromobenzene
524.2		Water	Bromochloromethane
524.2		Water	Bromoethane
524.2		Water	Bromomethane (Methyl Bromide)
524.2		Water	Carbon disulfide
524.2		Water	Chloroethane
524.2		Water	Chloromethane (methyl chloride)
524.2		Water	cis-1,3-Dichloropropene
524.2		Water	Dibromomethane
524.2		Water	Dichlorodifluoromethane
524.2		Water	Diisopropyl ether
524.2		Water	Hexachlorobutadiene
524.2		Water	Isopropylbenzene
524.2		Water	m,p-Xylenes
524.2		Water	m-Dichlorobenzene (1,3-DCB)
524.2		Water	Naphthalene
524.2		Water	n-Butylbenzene
524.2		Water	N-Propylbenzene
524.2		Water	o-Chlorotoluene
524.2		Water	o-Xylene
524.2		Water	p-Chlorotoluene
524.2		Water	p-Isopropyltoluene
524.2		Water	sec-Butylbenzene
524.2		Water	tert-Butylbenzene
524.2		Water	Tertiary Butyl Alcohol (TBA)
524.2		Water	trans-1,3-Dichloropropene
525.2	525.2	Water	1-Methylnaphthalene
525.2	525.2	Water	2,4'-DDD
525.2	525.2	Water	2,4'-DDE
525.2	525.2	Water	2,4'-DDT



# Accreditation/Certification Summary

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

Job ID: 380-55362-1

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

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

# Accreditation/Certification Summary

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

Job ID: 380-55362-1

## 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	Water	Pyrene
525.2	525.2	Water	Terbacil
525.2	525.2	Water	Terbutylazine
525.2	525.2	Water	Thiobencarb
525.2	525.2	Water	Total Permethrin (mixed isomers)
525.2	525.2	Water	trans-Nonachlor
525.2	525.2	Water	Trifluralin
SM 2320B		Water	Bicarbonate Alkalinity as CaCO <sub>3</sub>
SM 2320B		Water	Carbonate Alkalinity as CaCO <sub>3</sub>
SM 4500 S2 D		Water	Sulfide

## Laboratory: Eurofins Eaton Analytical South Bend

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	ISO/IEC 17025	5794.01	07-31-24
Alabama	State	40700	06-30-24
Alaska	State	IN00035	06-30-24
Arizona	State	AZ0432	07-26-24
Arkansas (DW)	State	EPA IN00035	06-30-23 *
California	State	2920	06-30-24
Colorado	State	IN00035	02-29-24
Connecticut	State	PH-0132	03-31-24
Delaware (DW)	State	IN00035	06-30-24
Florida	NELAP	E87775	06-30-24
Georgia (DW)	State	929	06-30-24
Guam	State	23-011R	07-15-24
Hawaii	State	IN035	06-30-24
Idaho (DW)	State	IN00035	12-31-23
IL Dept. of Public Health (Micro)	State	17767	07-01-24
Illinois	NELAP	200001	08-17-23
Indiana	State	C-71-01	12-31-25
Indiana (Micro)	State	M-76-07	12-31-25
Iowa	State	IA Lab #098	10-31-23
Kansas	NELAP	E-10233	10-31-23
Kentucky (DW)	State	KY90056	12-31-23
Louisiana (DW)	State	LA014	12-31-23
Maine	State	IN00035	05-01-25
Maryland	State	209	06-30-24
Massachusetts	State	M-IN035	06-30-24
MI - RadChem Recognition	State	9926	06-30-24
Michigan	State	9926	06-30-24
Minnesota	NELAP	1989807	12-31-23
Mississippi	State	IN00035	06-30-24
Missouri	State	880	09-30-24
Montana (DW)	State	CERT0026	01-02-24
Nebraska	State	NE-OS-05-04	06-30-24

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins Eaton Analytical Pomona

# Accreditation/Certification Summary

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

Job ID: 380-55362-1

## Laboratory: Eurofins Eaton Analytical South Bend (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Nevada	State	IN000352024-01	07-31-24
New Hampshire	NELAP	2124	11-05-23
New Jersey	NELAP	IN598	06-30-24
New Mexico	State	IN00035	06-30-24
New York	NELAP	11398	04-01-24
North Carolina (DW)	State	18700	07-31-24
North Dakota	State	R-035	09-26-23
Northern Mariana Islands (DW)	State	IN00035	06-30-24
Ohio	State	87775	06-30-24
Oklahoma	NELAP	D9508	08-31-23
Oregon	NELAP	4156	09-16-23
Pennsylvania	NELAP	68-00466	04-30-24
Puerto Rico	State	IN00035	04-01-24
Rhode Island	State	LAO00343	12-30-23
South Carolina	State	95005001	06-30-23 *
South Dakota (DW)	State	IN00035	06-30-24
Tennessee	State	TN02973	06-30-24
Texas	NELAP	T104704187-22-16	12-31-23
Texas	TCEQ Water Supply	TX207	06-30-24
USEPA Reg X SDWA	US Federal Programs	IN00035	08-24-24
USEPA UCMR 5	US Federal Programs	IN00035	12-31-25
Utah	NELAP	IN00035	07-31-24
Vermont	State	VT-8775	11-15-23
Virginia	NELAP	460275	03-14-24
Washington	State	C837	01-01-24
West Virginia (DW)	State	9927 C	12-31-23
Wisconsin	State	999766900	08-14-23
Wisconsin (Micro)	State	10121	12-31-23
Wyoming	State	8TMS-L	06-30-23 *

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.



# Method Summary

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

Job ID: 380-55362-1

Method	Method Description	Protocol	Laboratory
524.2	Total Trihalomethanes	EPA-DW	EA POM
524.2	Volatile Organic Compounds (GC/MS SIM)	EPA-DW	EA POM
524.2	Volatile Organic Compounds (GC/MS)	EPA-DW	EA POM
525.2	Semivolatile Organic Compounds (GC/MS)	EPA	EA POM
504.1	EDB, DBCP and 1,2,3-TCP (GC)	EPA-DW2	EA POM
505	Organochlorine Pesticides/PCBs (GC)	EPA	EA POM
300.0	Anions, Ion Chromatography	EPA	EA POM
200.7 Rev 4.4	Metals (ICP)	EPA	EA POM
200.8	Metals (ICP/MS)	EPA	EA SB
245.1	Mercury (CVAA)	EPA	EA SB
SM 2320B	Alkalinity	SM	EA POM
SM 2510B	Conductivity, Specific Conductance	SM	EA POM
SM 2540C	Solids, Total Dissolved (TDS)	SM	EA POM
SM 4500 F C	Fluoride	SM	EA POM
SM 4500 H+ B	pH	SM	EA POM
SM 4500 S2 D	Sulfide, Total	SM	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	
245.1	Preparation, Mercury	EPA	EA SB
504.1	Microextraction	EPA-DW	EA POM
505	Extraction, Organochlorine Pesticides/PCBs	EPA	EA POM
525.2	Extraction of Semivolatile Compounds	EPA	EA POM
None	Autocomplete Prep - Metals - No Digestion required	None	EA POM

#### Protocol References:

EPA = US Environmental Protection Agency

EPA-DW = "Methods For The Determination Of Organic Compounds In Drinking Water", EPA/600/4-88/039, December 1988 And Its Supplements.

EPA-DW2 = "Methods For The Determination of Organic Compounds in Drinking Water - Supplement III ", EPA/600/R-95-131, August 1995

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

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

EA SB = Eurofins Eaton Analytical South Bend, 110 S Hill Street, South Bend, IN 46617, TEL (574)233-4777

# Sample Summary

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

Job ID: 380-55362-1

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<u>Lab Sample ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Collected</u>	<u>Received</u>
380-55362-1	HALAWA WELLS UNITS 1 & 2	Water	07/18/23 09:00	07/19/23 10:00
380-55362-2	TB: HALAWA WELLS UNITS 1 & 2	Water	07/18/23 09:00	07/19/23 10:00

- 1
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- 17

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

Date: 08-14-2023  
 EMAX Batch No.: 23G183

Attn: Jackie Contreras

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

Subject: Laboratory Report  
 Project: 380-55362

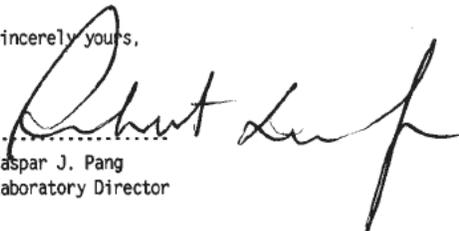
Enclosed is the Laboratory report for samples received on 07/20/23.  
 The data reported relate only to samples listed below :

Sample ID	Control #	Col Date	Matrix	Analysis
380-55362-1	G183-01	07/18/23	WATER	TPH GASOLINE TPH ETHANOL
380-55362-2	G183-02	07/18/23	WATER	TPH GASOLINE
380-55362-1MS	G183-01M	07/18/23	WATER	TPH JP-8
380-55362-1MSD	G183-01S	07/18/23	WATER	TPH JP-8

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



**Client Information (Sub Contract Lab)**

Client Contact: **Arada, Rachelle** Lab PM: **Arada, Rachelle**  
 Shipping/Receiving: **Rachelle.Arada@eurofins.com** E-Mail: **Rachelle.Arada@eurofins.com**  
 Company: **EMAX Laboratories Inc** Address: **380-54475-1** Carrier Tracking No(s): **380-54475-1**  
 Address: **3051 Fujita Street,** City: **Torrance** State: **CA** Zip: **90505** State of Origin: **Hawaii**  
 Phone: **626-386-1100** Fax: **626-386-1100** Job #: **380-55362-1** Page: **1 of 1**

Due Date Requested: **8/2/2023** Analysis Requested: **Sub (8015 Ethanol)/ 8015 Ethanol**  
 TAT Requested (days): **7** Perform MS/MSD (Yes or No) **X**  
 SUB (8015 Gas (Purgeable) LL (EAL))/ 8015 Gas (Purgeable) LL (EAL)  
 SUB (8015 LL DRO/MRO/JP5/JP8)/ 8015 LL DRO/MRO/JP5/JP8

Project Name: **RED-HILL** Project #: **38001111**  
 Site: **Honolulu BWS Sites** SSO# **SSOW#:**  
 Email: **WO #:**  
 Preservation Codes:  
 A - HCL  
 B - NaOH  
 C - Zn Acetate  
 D - Nitro Acid  
 E - NaHSO4  
 F - MeOH  
 G - Amelcor  
 H - Ascorbic Acid  
 I - Ice  
 J - DI Water  
 K - EDTA  
 L - EDA  
 M - Hexane  
 N - None  
 O - AsNaO2  
 P - Na2CO3  
 Q - Na2SO3  
 R - Na2S2O3  
 S - H2SO4  
 T - TSP Dodecylaldehyde  
 U - Acetone  
 V - MCAA  
 W - pH 4.5  
 Y - Triema  
 Z - other (Specify)

**Sample Identification - Client ID (Lab ID)**

Sample ID	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix (Water, Seawater, Overstall, etc.)	Preservation Code	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Total Number of containers	Special Instructions/Note
HALAWA WELLS UNITS 1 & 2 (380-55362-1)	7/18/23	09:00	Hawaiian	Water		X	X	12	See Attached Instructions
2 TB- HALAWA WELLS UNITS 1 & 2 (380-55362-2)	7/18/23	09:00	Hawaiian	Water		X	X	2	See Attached Instructions

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

**Possible Hazard Identification**

Unconfirmed Deliverable Requested: I, II, III, IV, Other (specify) **Primary Deliverable Rank: 2** Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)  
 Return To Client  Disposal By Lab  Archive For **Months**

Empty Kit Relinquished by: **Date:** **Time:** Method of Shipment:

Relinquished by: **Date/Time:** **10:28** Company: **EMAX** Received by: **Date/Time:** **07/20/23** **10:22** Company: **EMAX**

Relinquished by: **Date/Time:** Company: Received by: **Date/Time:** Company:

Custody Seals Intact: **Custody Seal No.:** Cooler Temperature(s) °C and Other Remarks: **5.7/5.6** **FCF: -0.1**  
 A Yes A No  
**REPORT ID: 23G183** Page: **2 of 4**



ECN 23G183	Recipient <u>Jocelyne Solis-Kamug</u>	Date <u>07/20/23</u>
Time <u>10:22</u>		

**COC INSPECTION**

Client Name  Client PM/FC  Tel # / Fax # \_\_\_\_\_  
 Address \_\_\_\_\_  
 Safety Issues (if any)  High concentrations expected  From Superfund Site   
 Sampling Date/Time  Analysis Required  Rad screening required   
 Sample ID  Preservative (if any) \_\_\_\_\_  
 Matrix  TAT \_\_\_\_\_

**PACKAGING INSPECTION**

Container  Cooler  Box   
 Condition  Correction  Damaged  Intact   
 Packaging Factor:  Bubble Pack  Styrofoam   
 Thermometer:  -0.1  A-S/N 221852708  Cooler 6  Cooler 7  Cooler 8  Cooler 9  Cooler 10   
 Temperatures (Cool, 5°C but not frozen) \_\_\_\_\_  
 Comments:  Temperature is out of range. PM was informed IMMEDIATELY.  
 Note: \_\_\_\_\_

DISCREPANCIES	LabSampleID	Code	ClientSample Label ID / Information	Corrective Action
	2	D22	2nd date reads: 6/1/23 *	Corrective Action
pH holding time requirement for water samples is 15 mins. Water samples for pH analysis are received beyond 15 minutes from sampling time.				
NOTES/OBSERVATIONS: * out of HT if collected 6/1/23.				
SAMPLE MATRIX IS DRINKING WATER? <input type="checkbox"/> YES <input type="checkbox"/> NO				

**LEGEND:**

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

**REVIEWS:**

REPORT ID: 23G183  
 Date 07/20/23  
 Sample Labeling Maria  
 SRF Jocelyne Solis-Kamug  
 Date 07/20/23

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

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

Continue to next page.



## 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

380-55362

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

SDG#: 23G183



CASE NARRATIVE

Client : EUROFINS EATON ANALYTICAL

Project: 380-55362

SDG : 23G183

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

A total of two(2) water samples were received on 07/20/23 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. Refer to MRL summary form for details.

Method Blank

Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. VG39G12B - 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. VG39G12L/VG39G12C 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 G182-01M/G182-01S. Refer to Matrix QC summary form for details.

Surrogate

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

Sample Analysis

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



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# SAMPLE RESULTS

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

Client	: EUROFINS EATON ANALYTICAL	Date Collected:	07/18/23 09:00
Project	: 380-55362	Date Received:	07/20/23
Batch No.	: 23G183	Date Extracted:	07/20/23 22:02
Sample ID	: 380-55362-1	Date Analyzed:	07/20/23 22:02
Lab Samp ID:	G183-01	Dilution Factor:	1
Lab File ID:	EG20012A	Matrix:	WATER
Ext Btch ID:	23VG39G12	% Moisture:	NA
Calib. Ref.:	EG20004A	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	0.0304	0.0400	76	60-140	

Notes:

Parameter H-C Range

Gasoline C6-C10

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

Sample Amount : 5ml

Final Volume : 5ml

Prepared by : SCerva

Analyzed by : SCerva



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# QC SUMMARIES





EMAX QUALITY CONTROL DATA  
LAB CONTROL SAMPLE ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL  
PROJECT : 380-55362  
BATCH NO. : 23G183  
METHOD : 5030B/8015B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR:	1	1	1
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: VG39G12B	VG39G12L	VG39G12C
LAB FILE ID	: EG20005A	EG20006A	EG20007A
DATE PREPARED	: 07/20/23 17:48	07/20/23 18:24	07/20/23 19:00
DATE ANALYZED	: 07/20/23 17:48	07/20/23 18:24	07/20/23 19:00
PREP BATCH	: 23VG39G12	23VG39G12	23VG39G12
CALIBRATION REF:	EG20004A	EG20004A	EG20004A

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	0.441	88	0.500	0.461	92	4	60-130	30

SURROGATE PARAMETER	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	QCLimit (%)
Bromofluorobenzene	0.0400	0.0433	108	0.0400	0.0441	110	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 : 380-55350  
BATCH NO. : 23G182  
METHOD : 5030B/8015B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR:	1		1
SAMPLE ID	: 380-55350-1	380-55350-1MS	380-55350-1MSD
LAB SAMPLE ID	: G182-01	G182-01M	G182-01S
LAB FILE ID	: EG20008A	EG20009A	EG20010A
DATE PREPARED	: 07/20/23 19:36	07/20/23 20:13	07/20/23 20:49
DATE ANALYZED	: 07/20/23 19:36	07/20/23 20:13	07/20/23 20:49
PREP BATCH	: 23VG39G12	23VG39G12	23VG39G12
CALIBRATION REF:	EG20004A	EG20004A	EG20004A

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	0.471	94	0.500	0.447	89	5	50-130	30

SURROGATE PARAMETER	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	QCLimit (%)
Bromofluorobenzene	0.0400	0.0435	109	0.0400	0.0427	107	60-140

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

LABORATORY REPORT FOR

EUROFINS EATON ANALYTICAL

380-55362

METHOD 3520C/8015B  
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

SDG#: 23G183



CASE NARRATIVE

Client : EUROFINS EATON ANALYTICAL

Project: 380-55362

SDG : 23G183

METHOD 3520C/8015B  
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

One(1) water sample was received on 07/20/23 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. Refer to MRL summary form for details.

Method Blank

Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. DSG037WB - 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 DSG037WL. 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 23G182-01M/23G182-01S. 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: 380-55362

SDG : 23G183

METHOD 3520C/8015B  
PETROLEUM HYDROCARBONS BY EXTRACTION

One(1) water sample was received on 07/20/23 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. Refer to MRL summary form for details.

Method Blank

Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. DSG037WB - 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 J5G037WL. 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 23G182-01M/23G182-01S. 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: 380-55362

SDG : 23G183

METHOD 3520C/8015B  
PETROLEUM HYDROCARBONS BY EXTRACTION

One(1) water sample was received on 07/20/23 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. Refer to MRL summary form for details.

Method Blank

Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. DSG037WB - 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 J8G037WL. 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 23G183-01M/23G183-01S. Refer to Matrix QC summary form for details.

Surrogate

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

Sample Analysis

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

LAB CHRONICLE  
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : EUROFINS EATON ANALYTICAL  
Project : 380-55362

SDG NO. : 23G183  
Instrument ID : D5

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	DSG037MB	1	NA	07/28/2319:29	07/27/2312:30	LG28022A	LG28016A	23DSG037W	Method Blank
LCS1W	DSG037WL	1	NA	07/28/2319:48	07/27/2312:30	LG28023A	LG28016A	23DSG037W	Lab Control Sample (LCS)
380-55362-1	G183-01	1	NA	07/28/2322:18	07/27/2312:30	LG28031A	LG28016A	23DSG037W	Field Sample

FN : Filename  
% Moist : Percent Moisture





LAB CHRONICLE  
PETROLEUM HYDROCARBONS BY EXTRACTION

Client : EUROFINS EATON ANALYTICAL  
Project : 380-55362

SDG NO. : 23G183  
Instrument ID : D5

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	DSG037MB	1	NA	07/28/2319:29	07/27/2312:30	LG28022A	LG28017A	23DSG037W	Method Blank
LCS1W	J5G037WL	1	NA	07/28/2320:07	07/27/2312:30	LG28024A	LG28017A	23DSG037W	Lab Control Sample (LCS)
380-55362-1	G183-01	1	NA	07/28/2322:18	07/27/2312:30	LG28031A	LG28017A	23DSG037W	Field Sample

FN - Filename  
% Moist - Percent Moisture





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# SAMPLE RESULTS

METHOD 3520C/8015B  
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : EUROFINS EATON ANALYTICAL	Date Collected: 07/18/23 09:00
Project : 380-55362	Date Received: 07/20/23
Batch No. : 23G183	Date Extracted: 07/27/23 12:30
Sample ID : 380-55362-1	Date Analyzed: 07/28/23 22:18
Lab Samp ID: 23G183-01	Dilution Factor: 1
Lab File ID: LG28031A	Matrix: WATER
Ext Btch ID: 23DSG037W	% Moisture: NA
Calib. Ref.: LG28016A	Instrument ID: D5

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)	
Diesel	ND	0.026	0.013	
Motor Oil	ND	0.052	0.026	
SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.329	0.520	63	60-130
Hexacosane	0.114	0.130	88	60-130

Notes:

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

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

Sample Amount : 960ml	Final Volume : 5ml
Prepared by : RGalan	Analyzed by : SDeeso

METHOD 3520C/8015B  
 PETROLEUM HYDROCARBONS BY EXTRACTION

Client : EUROFINS EATON ANALYTICAL	Date Collected: 07/18/23 09:00
Project : 380-55362	Date Received: 07/20/23
Batch No. : 23G183	Date Extracted: 07/27/23 12:30
Sample ID : 380-55362-1	Date Analyzed: 07/28/23 22:18
Lab Samp ID: 23G183-01	Dilution Factor: 1
Lab File ID: LG28031A	Matrix: WATER
Ext Btch ID: 23DSG037W	% Moisture: NA
Calib. Ref.: LG28017A	Instrument ID: D5

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)	
JP5	ND	0.052	0.026	
SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.329	0.520	63	60-130
Hexacosane	0.114	0.130	88	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 : 960ml Final Volume : 5ml  
 Prepared by : RGalan Analyzed by : SDeeso

METHOD 3520C/8015B  
 PETROLEUM HYDROCARBONS BY EXTRACTION

Client : EUROFINS EATON ANALYTICAL	Date Collected: 07/18/23 09:00
Project : 380-55362	Date Received: 07/20/23
Batch No. : 23G183	Date Extracted: 07/27/23 12:30
Sample ID : 380-55362-1	Date Analyzed: 07/28/23 22:18
Lab Samp ID: 23G183-01	Dilution Factor: 1
Lab File ID: LG28031A	Matrix: WATER
Ext Btch ID: 23DSG037W	% Moisture: NA
Calib. Ref.: LG28018A	Instrument ID: D5

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)	
JP8	ND	0.052	0.026	
SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.329	0.520	63	60-130
Hexacosane	0.114	0.130	88	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 : 960ml

Final Volume : 5ml

Prepared by : RGalán

Analyzed by : SDeeso

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# QC SUMMARIES

METHOD 3520C/8015B  
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : EUROFINS EATON ANALYTICAL	Date Collected: 07/27/23 12:30
Project : 380-55362	Date Received: 07/27/23
Batch No. : 23G183	Date Extracted: 07/27/23 12:30
Sample ID : MBLK1W	Date Analyzed: 07/28/23 19:29
Lab Samp ID: DSG037WB	Dilution Factor: 1
Lab File ID: LG28022A	Matrix: WATER
Ext Btch ID: 23DSG037W	% Moisture: NA
Calib. Ref.: LG28016A	Instrument ID: D5

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)	
Diesel	ND	0.025	0.012	
Motor Oil	ND	0.050	0.025	
SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.330	0.500	66	60-130
Hexacosane	0.108	0.125	87	60-130

Notes:

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

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

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



EMAX QUALITY CONTROL DATA  
LAB CONTROL SAMPLE ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL  
PROJECT : 380-55362  
BATCH NO. : 23G183  
METHOD : 3520C/8015B

MATRIX : WATER % MOISTURE:NA  
DILUTION FACTOR: 1 1  
SAMPLE ID : MBLK1W LCS1W  
LAB SAMPLE ID : DSG037WB DSG037WL  
LAB FILE ID : LG28022A LG28023A  
DATE PREPARED : 07/27/23 12:30 07/27/23 12:30  
DATE ANALYZED : 07/28/23 19:29 07/28/23 19:48  
PREP BATCH : 23DSG037W 23DSG037W  
CALIBRATION REF: LG28016A LG28016A

ACCESSION:

PARAMETERS	MBResult (mg/L)	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	QCLimit (%)
Diesel	ND	2.50	2.13	85	50-130

SURROGATE PARAMETERS	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	QCLimit (%)
Bromobenzene	0.500	0.328	66	60-130
Hexacosane	0.125	0.109	87	60-130

MB: Method Blank sample LCS: Lab Control Sample

EMAX QUALITY CONTROL DATA  
MS/MSD ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL  
PROJECT : 380-55350  
BATCH NO. : 23G182  
METHOD : 3520C/8015B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR:	1	1	1
SAMPLE ID	: 380-55350-1	380-55350-1MS	380-55350-1MSD
LAB SAMPLE ID	: 23G182-01	23G182-01M	23G182-01S
LAB FILE ID	: LG28026A	LG28027A	LG28028A
DATE PREPARED	: 07/27/23 12:30	07/27/23 12:30	07/27/23 12:30
DATE ANALYZED	: 07/28/23 20:44	07/28/23 21:03	07/28/23 21:22
PREP BATCH	: 23DSG037W	23DSG037W	23DSG037W
CALIBRATION REF:	LG28016A	LG28016A	LG28016A

ACCESSION:

PARAMETERS	PSResult (mg/L)	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Diesel	ND	2.90	2.90	100	2.90	2.80	97	4	50-130	30

SURROGATE PARAMETERS	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	QCLimit (%)
Bromobenzene	0.580	0.442	76	0.580	0.454	78	60-130
Hexacosane	0.145	0.147	101	0.145	0.140	97	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: 07/27/23 12:30
Project : 380-55362	Date Received: 07/27/23
Batch No. : 23G183	Date Extracted: 07/27/23 12:30
Sample ID : MBLK1W	Date Analyzed: 07/28/23 19:29
Lab Samp ID: DSG037WB	Dilution Factor: 1
Lab File ID: LG28022A	Matrix: WATER
Ext Btch ID: 23DSG037W	% Moisture: NA
Calib. Ref.: LG28017A	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	0.330	0.500	66	60-130
Hexacosane	0.108	0.125	87	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 : RGalan                              Analyzed by : SDeeso

EMAX QUALITY CONTROL DATA  
LAB CONTROL SAMPLE ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL  
PROJECT : 380-55362  
BATCH NO. : 23G183  
METHOD : 3520C/8015B

MATRIX : WATER % MOISTURE:NA  
DILUTION FACTOR: 1 1  
SAMPLE ID : MBLK1W LCS1W  
LAB SAMPLE ID : DSG037WB J5G037WL  
LAB FILE ID : LG28022A LG28024A  
DATE PREPARED : 07/27/23 12:30 07/27/23 12:30  
DATE ANALYZED : 07/28/23 19:29 07/28/23 20:07  
PREP BATCH : 23DSG037W 23DSG037W  
CALIBRATION REF: LG28017A LG28017A

ACCESSION:

PARAMETERS	MBResult (mg/L)	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	QCLimit (%)
JP5	ND	2.50	1.82	73	30-160

SURROGATE PARAMETERS	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	QCLimit (%)
Bromobenzene	0.500	0.371	74	60-130
Hexacosane	0.125	0.109	87	60-130

MB: Method Blank sample LCS: Lab Control Sample

EMAX QUALITY CONTROL DATA  
MS/MSD ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL  
PROJECT : 380-55350  
BATCH NO. : 23G182  
METHOD : 3520C/8015B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR:	1	1	1
SAMPLE ID	: 380-55350-1	380-55350-1MS	380-55350-1MSD
LAB SAMPLE ID	: 23G182-01	23G182-01M	23G182-01S
LAB FILE ID	: LG28026A	LG28029A	LG28030A
DATE PREPARED	: 07/27/23 12:30	07/27/23 12:30	07/27/23 12:30
DATE ANALYZED	: 07/28/23 20:44	07/28/23 21:40	07/28/23 21:59
PREP BATCH	: 23DSG037W	23DSG037W	23DSG037W
CALIBRATION REF:	LG28017A	LG28017A	LG28017A

ACCESSION:

PARAMETERS	PSResult (mg/L)	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
JP5	ND	2.78	2.40	86	2.88	2.21	77	8	30-160	30

SURROGATE PARAMETERS	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	QCLimit (%)
Bromobenzene	0.555	0.456	82	0.575	0.406	71	60-130
Hexacosane	0.139	0.127	92	0.144	0.128	89	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:	07/27/23 12:30
Project	: 380-55362	Date Received:	07/27/23
Batch No.	: 23G183	Date Extracted:	07/27/23 12:30
Sample ID	: MBLK1W	Date Analyzed:	07/28/23 19:29
Lab Samp ID:	DSG037WB	Dilution Factor:	1
Lab File ID:	LG28022A	Matrix:	WATER
Ext Btch ID:	23DSG037W	% Moisture:	NA
Calib. Ref.:	LG28018A	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	0.330	0.500	66	60-130
Hexacosane	0.108	0.125	87	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 : RGalan

Analyzed by : SDeeso

EMAX QUALITY CONTROL DATA  
LAB CONTROL SAMPLE ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL  
PROJECT : 380-55362  
BATCH NO. : 23G183  
METHOD : 3520C/8015B

MATRIX : WATER % MOISTURE:NA  
DILUTION FACTOR: 1 1  
SAMPLE ID : MBLK1W LCS1W  
LAB SAMPLE ID : DSG037WB J8G037WL  
LAB FILE ID : LG28022A LG28025A  
DATE PREPARED : 07/27/23 12:30 07/27/23 12:30  
DATE ANALYZED : 07/28/23 19:29 07/28/23 20:25  
PREP BATCH : 23DSG037W 23DSG037W  
CALIBRATION REF: LG28018A LG28018A

ACCESSION:

PARAMETERS	MBResult (mg/L)	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	QCLimit (%)
JPB	ND	2.50	2.70	108	30-160

SURROGATE PARAMETERS	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	QCLimit (%)
Bromobenzene	0.500	0.471	94	60-130
Hexacosane	0.125	0.108	86	60-130

MB: Method Blank sample LCS: Lab Control Sample

EMAX QUALITY CONTROL DATA  
MS/MSD ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL  
PROJECT : 380-55362  
BATCH NO. : 23G183  
METHOD : 3520C/8015B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR:	1	1	1
SAMPLE ID	: 380-55362-1	380-55362-1MS	380-55362-1MSD
LAB SAMPLE ID	: 23G183-01	23G183-01M	23G183-01S
LAB FILE ID	: LG28031A	LG28032A	LG28033A
DATE PREPARED	: 07/27/23 12:30	07/27/23 12:30	07/27/23 12:30
DATE ANALYZED	: 07/28/23 22:18	07/28/23 22:36	07/28/23 22:55
PREP BATCH	: 23DSG037W	23DSG037W	23DSG037W
CALIBRATION REF:	LG28018A	LG28018A	LG28018A

ACCESSION:

PARAMETERS	PSResult (mg/L)	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
JP8	ND	2.85	3.01	106	2.85	3.29	115	9	30-160	30

SURROGATE PARAMETERS	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	QCLimit (%)
Bromobenzene	0.570	0.547	96	0.570	0.575	101	60-130
Hexacosane	0.142	0.122	86	0.142	0.130	91	60-130

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



LABORATORY REPORT FOR

EUROFINS EATON ANALYTICAL

380-55362

METHOD SW8015C  
ALCOHOLS BY GC

SDG#: 23G183

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CASE NARRATIVE

Client : EUROFINS EATON ANALYTICAL

Project: 380-55362

SDG : 23G183

METHOD SW8015C  
ALCOHOLS BY GC

One(1) water sample was received on 07/20/23 to be analyzed for Alcohols by GC in accordance with Method SW8015C and project specific requirements.

Holding Time

The sample was analyzed within the prescribed holding time.

Calibration

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

Method Blank

Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. MEG005WB - 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. MEG005WL/MEG005WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample

No matrix QC sample was provided on this SDG. Ethanol was within MS QC limits in G182-01M/G182-01S. Refer to Matrix QC summary form for details.

Sample Analysis

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



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# SAMPLE RESULTS

METHOD SW8015C  
ALCOHOLS BY GC

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Client	: EUROFINS EATON ANALYTICAL	Date Collected:	07/18/23
Project	: 380-55362	Date Received:	07/20/23
Batch No.	: 23G183	Date Extracted:	NA
Sample ID:	380-55362-1	Date Analyzed:	07/21/23 17:39
Lab Samp ID:	G183-01	Dilution Factor:	1
Lab File ID:	TG21010A	Matrix	: WATER
Ext Btch ID:	MEG005W	% Moisture	: NA
Calib. Ref.:	TG21002A	Instrument ID	: GCT050

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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
----- ETHANOL	----- ND	----- 2000	----- 500

RL : Reporting Limit

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# QC SUMMARIES

METHOD SW8015C  
ALCOHOLS BY GC

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Client	: EUROFINS EATON ANALYTICAL	Date Collected:	NA
Project	: 380-55362	Date Received:	NA
Batch No.	: 23G183	Date Extracted:	NA
Sample ID:	MBLK1W	Date Analyzed:	07/21/23 16:08
Lab Samp ID:	MEG005WB	Dilution Factor:	1
Lab File ID:	TG21004A	Matrix	: WATER
Ext Btch ID:	MEG005W	% Moisture	: NA
Calib. Ref.:	TG21002A	Instrument ID	: GCT050

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PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
----- ETHANOL	----- ND	----- 2000	----- 500

RL : Reporting Limit

EMAX QUALITY CONTROL DATA  
LCS/LCD ANALYSIS

CLIENT: EUROFINS EATON ANALYTICAL  
PROJECT: 380-55362  
BATCH NO.: 23G183  
METHOD: METHOD SW8015C

MATRIX: WATER % MOISTURE: NA  
DILUTION FACTOR: 1 1 1  
SAMPLE ID: MBLK1W  
LAB SAMP ID: MEG005WB MEG005WL MEG005WC  
LAB FILE ID: TG21004A TG21005A TG21006A  
DATE EXTRACTED: NA NA NA DATE COLLECTED: NA  
DATE ANALYZED: 07/21/2316:08 07/21/2316:23 07/21/2316:37 DATE RECEIVED: NA  
PREP. BATCH: MEG005W MEG005W MEG005W  
CALIB. REF: TG21002A TG21002A TG21002A

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Ethanol	ND	10000	9060	91	10000	9910	99	9	60-130	30



EMAX QUALITY CONTROL DATA  
MS/MSD ANALYSIS

CLIENT: EUROFINS EATON ANALYTICAL  
PROJECT: 380-55350  
BATCH NO.: 23G182  
METHOD: METHOD SW8015C

MATRIX: WATER % MOISTURE: NA  
DILUTION FACTOR: 1 1  
SAMPLE ID: 380-55350-1  
LAB SAMP ID: G182-01 G182-01M G182-01S  
LAB FILE ID: TG21007A TG21008A TG21009A  
DATE EXTRACTED: NA NA NA DATE COLLECTED: 07/17/23  
DATE ANALYZED: 07/21/2316:53 07/21/2317:07 07/21/2317:21 DATE RECEIVED: 07/20/23  
PREP. BATCH: MEG005W MEG005W MEG005W  
CALIB. REF: TG21002A TG21002A TG21002A

ACCESSION:

PARAMETER	SMPL RSLT (ug/L)	SPIKE AMT (ug/L)	MS RSLT (ug/L)	MS % REC	SPIKE AMT (ug/L)	MSD RSLT (ug/L)	MSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Ethanol	ND	10000	9570	96	10000	9160	92	4	60-130	30

September 13, 2023

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

Project Name: RED-HILL Project # 38001111 Job # 380-55362-1  
 Physis Project ID: 1407003-421

Dear Rachelle,

Enclosed are the analytical results for the sample submitted to PHYSIS Environmental Laboratories, Inc. (PHYSIS) on 7/20/2023. 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
Base/Neutral Extractable Compounds by EPA 625.1
Acid Extractable Compounds w/ PAHs by EPA 625.1
6-tert-Butyl-2,4-dimethylphenol by EPA 625.1
2,6-Di-tert-butylphenol by EPA 625.1
2,6-Di-tert-butyl-4-methylphenol by EPA 625.1
p-tert-Butylphenol 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,

Rachel Hansen  
 714 602-5320  
 Extension 203  
 rachelhansen@physislabs.com



## PROJECT SAMPLE LIST

Eurofins Eaton Analytical

PHYSIS Project ID: 1407003-421

RED-HILL Project # 38001111 Job # 380-55362-1

Total Samples: 1

PHYSIS ID	Sample ID	Description	Date	Time	Matrix	Sample Type
108482	HALAWA WELLS UNITS 1 & 2	380-55362-1	7/18/2023	9:00	Samplewater	Not Specified

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## ABBREVIATIONS and ACRONYMS

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

## QUALITY ASSURANCE SUMMARY

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

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

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

**PRECISION:** Precision is the agreement among a set of replicate measurements without assumption of knowledge of the true value and is based on RPD calculations between repeated values. Precision of the project data was determined by analysis of replicate MS<sub>1</sub>/MS<sub>2</sub>, BS<sub>1</sub>/BS<sub>2</sub>, LCS<sub>1</sub>/LCS<sub>2</sub>, LCM<sub>1</sub>/LCM<sub>2</sub>, CRM<sub>1</sub>/CRM<sub>2</sub>, surrogate spikes and/or replicate project sample analysis (R<sub>1</sub>/R<sub>2</sub>) on a minimum frequency of one per batch. Physis' QM requires that for 95% of the compounds greater than 10 times the MDL, the percent RPD should be within the specified acceptance range.

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

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

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

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

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

**SURROGATES:** A surrogate is a pure analyte unlikely to be found in any project sample, behaves similarly to the target analyte and most often used with organic analytical procedures. Surrogates are added in known concentration to all samples and are measured to indicate overall efficiency of the method including processing and analyses.

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

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

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

## PHYSIS QUALIFIER CODES

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

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## CASE NARRATIVE

### QUALIFIER NOTES

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

#### **ND**

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



# ANALYTICALS

# REPORT

TERRA AURA  
ENVIRONMENTAL LABORATORIES, INC.

*Innovative Solutions for Nature*

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## Acid Extractable Compounds

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed	
<b>Sample ID: 108482-R1</b>	<b>HALAWA WELLS UNITS 1 &amp; 2 380-5 Matrix: Samplewater</b>						<b>Sampled:</b>	<b>18-Jul-23</b>	<b>9:00</b>	<b>Received:</b>	<b>20-Jul-23</b>	
(2,4,6-Tr bromophenol)	EPA 625.1	% Recovery	139	1			Total		O-42022	21-Jul-23	01-Sep-23	
(d5-Phenol)	EPA 625.1	% Recovery	85	1			Total		O-42022	21-Jul-23	01-Sep-23	
2,4,5-Trichlorophenol	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-42022	21-Jul-23	01-Sep-23	
2,4,6-Trichlorophenol	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-42022	21-Jul-23	01-Sep-23	
2,4-Dichlorophenol	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-42022	21-Jul-23	01-Sep-23	
2,4-Dinitrophenol	EPA 625.1	µg/L	ND	1	0.1	0.2	Total		O-42022	21-Jul-23	01-Sep-23	
2,6-Dichlorophenol	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-42022	21-Jul-23	01-Sep-23	
2,6-Di-tert-butyl-4-methylphenol	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-42022	21-Jul-23	01-Sep-23	
2,6-Di-tert-butylphenol	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-42022	21-Jul-23	01-Sep-23	
2-Chlorophenol	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-42022	21-Jul-23	01-Sep-23	
2-Methyl-4,6-dinitrophenol	EPA 625.1	µg/L	ND	1	0.1	0.2	Total		O-42022	21-Jul-23	01-Sep-23	
2-Methylphenol	EPA 625.1	µg/L	ND	1	0.1	0.2	Total		O-42022	21-Jul-23	01-Sep-23	
2-Nitrophenol	EPA 625.1	µg/L	ND	1	0.1	0.2	Total		O-42022	21-Jul-23	01-Sep-23	
3+4-Methylphenol	EPA 625.1	µg/L	ND	1	0.1	0.2	Total		O-42022	21-Jul-23	01-Sep-23	
4-Chloro-3-methylphenol	EPA 625.1	µg/L	ND	1	0.1	0.2	Total		O-42022	21-Jul-23	01-Sep-23	
4-Nitrophenol	EPA 625.1	µg/L	ND	1	0.1	0.2	Total		O-42022	21-Jul-23	01-Sep-23	
6-tert-butyl-2,4-dimethylphenol	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-42022	21-Jul-23	01-Sep-23	
Benzoic Acid	EPA 625.1	µg/L	ND	1	0.1	0.2	Total		O-42022	21-Jul-23	01-Sep-23	
Benzyl Alcohol	EPA 625.1	µg/L	ND	1	0.1	0.2	Total		O-42022	21-Jul-23	01-Sep-23	
Pentachlorophenol	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-42022	21-Jul-23	01-Sep-23	
Phenol	EPA 625.1	µg/L	ND	1	0.1	0.2	Total		O-42022	21-Jul-23	01-Sep-23	
p-tert-Butylphenol	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-42022	21-Jul-23	01-Sep-23	

## Base/Neutral Extractable Compounds

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed	
<b>Sample ID: 108482-R1</b>	<b>HALAWA WELLS UNITS 1 &amp; 2 380-5 Matrix: Samplewater</b>						<b>Sampled:</b>	<b>18-Jul-23</b>	<b>9:00</b>	<b>Received:</b>	<b>20-Jul-23</b>	
2-Chloronaphthalene	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-42022	21-Jul-23	01-Sep-23	
2-Nitroaniline	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-42022	21-Jul-23	01-Sep-23	
3-Nitroaniline	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-42022	21-Jul-23	01-Sep-23	
4-Bromophenylphenyl ether	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-42022	21-Jul-23	01-Sep-23	
4-Chloroaniline	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-42022	21-Jul-23	01-Sep-23	
4-Chlorophenylphenyl ether	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-42022	21-Jul-23	01-Sep-23	
4-Nitroaniline	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-42022	21-Jul-23	01-Sep-23	
Aniline	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-42022	21-Jul-23	01-Sep-23	
Benzidine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-42022	21-Jul-23	01-Sep-23	
Bis(2-Chloroethoxy) methane	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-42022	21-Jul-23	01-Sep-23	
Bis(2-Chloroethyl) ether	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-42022	21-Jul-23	01-Sep-23	
Bis(2-Chloroisopropyl) ether	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-42022	21-Jul-23	01-Sep-23	
Dibenzofuran	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-42022	21-Jul-23	01-Sep-23	
Disalicylidenepropanediamine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-42022	21-Jul-23	01-Sep-23	
Hexachloroethane	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-42022	21-Jul-23	01-Sep-23	
Nitrobenzene	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-42022	21-Jul-23	01-Sep-23	
N-Nitrosodi-n-propylamine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-42022	21-Jul-23	01-Sep-23	
N-Nitrosodiphenylamine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-42022	21-Jul-23	01-Sep-23	

## Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed	
<b>Sample ID: 108482-R1</b>	<b>HALAWA WELLS UNITS 1 &amp; 2 380-5 Matrix: Samplewater</b>						<b>Sampled:</b>	<b>18-Jul-23 9:00</b>	<b>Received:</b>	<b>20-Jul-23</b>		
(d10-Acenaphthene)	EPA 625.1	% Recovery	97	1			Total		O-42022	21-Jul-23	01-Sep-23	
(d10-Phenanthrene)	EPA 625.1	% Recovery	96	1			Total		O-42022	21-Jul-23	01-Sep-23	
(d12-Chrysene)	EPA 625.1	% Recovery	92	1			Total		O-42022	21-Jul-23	01-Sep-23	
(d12-Perylene)	EPA 625.1	% Recovery	98	1			Total		O-42022	21-Jul-23	01-Sep-23	
(d8-Naphthalene)	EPA 625.1	% Recovery	87	1			Total		O-42022	21-Jul-23	01-Sep-23	
1-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-42022	21-Jul-23	01-Sep-23	
1-Methylphenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-42022	21-Jul-23	01-Sep-23	
2,3,5-Trimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-42022	21-Jul-23	01-Sep-23	
2,6-Dimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-42022	21-Jul-23	01-Sep-23	
2-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-42022	21-Jul-23	01-Sep-23	
Acenaphthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-42022	21-Jul-23	01-Sep-23	
Acenaphthylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-42022	21-Jul-23	01-Sep-23	
Anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-42022	21-Jul-23	01-Sep-23	
Benz[a]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-42022	21-Jul-23	01-Sep-23	
Benzo[a]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-42022	21-Jul-23	01-Sep-23	
Benzo[b]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-42022	21-Jul-23	01-Sep-23	
Benzo[e]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-42022	21-Jul-23	01-Sep-23	
Benzo[g,h,i]perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-42022	21-Jul-23	01-Sep-23	
Benzo[k]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-42022	21-Jul-23	01-Sep-23	
Biphenyl	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-42022	21-Jul-23	01-Sep-23	
Chrysene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-42022	21-Jul-23	01-Sep-23	
Dibenz[a,h]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-42022	21-Jul-23	01-Sep-23	
Dibenzo[a,l]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-42022	21-Jul-23	01-Sep-23	
Dibenzothiophene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-42022	21-Jul-23	01-Sep-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-42022	21-Jul-23	01-Sep-23
Fluorene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-42022	21-Jul-23	01-Sep-23
Indeno[1,2,3-cd]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-42022	21-Jul-23	01-Sep-23
Naphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-42022	21-Jul-23	01-Sep-23
Perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-42022	21-Jul-23	01-Sep-23
Phenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-42022	21-Jul-23	01-Sep-23
Pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-42022	21-Jul-23	01-Sep-23



# QUALITY CONTROL REPORT

TERRA ENVIRONMENTAL LABORATORIES, INC. AURA

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## Acid 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: 108481-B1</b>		<b>QAQC Procedural Blank</b>			<b>Matrix: BlankMatrix</b>			<b>Sampled:</b>		<b>Received:</b>			
Method: EPA 625.1		Batch ID: O-42022			Prepared: 21-Jul-23		Analyzed: 01-Sep-23						
(2,4,6-Tribromophenol)	Total	124	1			% Recovery	100	124	30 - 130%	PASS			
(d5-Phenol)	Total	129	1			% Recovery	100	129	0 - 130%	PASS			
2,4,5-Trichlorophenol	Total	ND	1	0.05	0.1	µg/L							
2,4,6-Trichlorophenol	Total	ND	1	0.05	0.1	µg/L							
2,4-Dichlorophenol	Total	ND	1	0.05	0.1	µg/L							
2,4-Dinitrophenol	Total	ND	1	0.1	0.2	µg/L							
2,6-Dichlorophenol	Total	ND	1	0.05	0.1	µg/L							
2,6-Di-tert-butyl-4-methylphenol	Total	ND	1	0.05	0.1	µg/L							
2,6-Di-tert-butylphenol	Total	ND	1	0.05	0.1	µg/L							
2-Chlorophenol	Total	ND	1	0.05	0.1	µg/L							
2-Methyl-4,6-dinitrophenol	Total	ND	1	0.1	0.2	µg/L							
2-Methylphenol	Total	ND	1	0.1	0.2	µg/L							
2-Nitrophenol	Total	ND	1	0.1	0.2	µg/L							
3+4-Methylphenol	Total	ND	1	0.1	0.2	µg/L							
4-Chloro-3-methylphenol	Total	ND	1	0.1	0.2	µg/L							
4-Nitrophenol	Total	ND	1	0.1	0.2	µg/L							
6-tert-butyl-2,4-dimethylphenol	Total	ND	1	0.05	0.1	µg/L							
Benzoic Acid	Total	ND	1	0.1	0.2	µg/L							
Benzyl Alcohol	Total	ND	1	0.1	0.2	µg/L							
Pentachlorophenol	Total	ND	1	0.05	0.1	µg/L							
Phenol	Total	ND	1	0.1	0.2	µg/L							
p-tert-Butylphenol	Total	ND	1	0.05	0.1	µg/L							

## Acid 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: 108481-BS1</b>		<b>QAQC Procedural Blank</b>			<b>Matrix: BlankMatrix</b>			<b>Sampled:</b>		<b>Received:</b>			
Method: EPA 625.1		Batch ID: O-42022			Prepared: 21-Jul-23		Analyzed: 01-Sep-23						
(2,4,6-Tribromophenol)	Total	101	1			% Recovery	100	0	101	30 - 130%	PASS		
(d5-Phenol)	Total	104	1			% Recovery	100	0	104	0 - 130%	PASS		
2,4,5-Trichlorophenol	Total	0.749	1	0.05	0.1	µg/L	1	0	75	30 - 130%	PASS		
2,4,6-Trichlorophenol	Total	0.823	1	0.05	0.1	µg/L	1	0	82	56 - 118%	PASS		
2,4-Dichlorophenol	Total	0.771	1	0.05	0.1	µg/L	1	0	77	51 - 117%	PASS		
2,4-Dinitrophenol	Total	0.695	1	0.1	0.2	µg/L	1	0	69	0 - 152%	PASS		
2,6-Dichlorophenol	Total	0.383	1	0.05	0.1	µg/L	0.5	0	77	30 - 130%	PASS		
2,6-Di-tert-butyl-4-methylphenol	Total	1.04	1	0.05	0.1	µg/L	1	0	104	50 - 150%	PASS		
2,6-Di-tert-butylphenol	Total	0.998	1	0.05	0.1	µg/L	1	0	100	50 - 150%	PASS		
2-Chlorophenol	Total	0.631	1	0.05	0.1	µg/L	1	0	63	41 - 110%	PASS		
2-Methyl-4,6-dinitrophenol	Total	0.814	1	0.1	0.2	µg/L	1	0	81	0 - 141%	PASS		
2-Methylphenol	Total	0.616	1	0.1	0.2	µg/L	1	0	62	40 - 117%	PASS		
2-Nitrophenol	Total	0.632	1	0.1	0.2	µg/L	1	0	63	40 - 117%	PASS		
3+4-Methylphenol	Total	0.644	1	0.1	0.2	µg/L	1	0	64	0 - 130%	PASS		
4-Chloro-3-methylphenol	Total	0.665	1	0.1	0.2	µg/L	1	0	67	51 - 128%	PASS		
4-Nitrophenol	Total	0.944	1	0.1	0.2	µg/L	1	0	94	10 - 164%	PASS		
6-tert-butyl-2,4-dimethylphenol	Total	0.935	1	0.05	0.1	µg/L	1	0	94	50 - 150%	PASS		
Benzoic Acid	Total	0.163	1	0.1	0.2	µg/L	1	0	16	2 - 145%	PASS		
Benzyl Alcohol	Total	0.616	1	0.1	0.2	µg/L	1	0	62	43 - 148%	PASS		
Pentachlorophenol	Total	0.678	1	0.05	0.1	µg/L	1	0	68	36 - 111%	PASS		
Phenol	Total	0.533	1	0.1	0.2	µg/L	1	0	53	29 - 114%	PASS		
p-tert-Butylphenol	Total	1.07	1	0.05	0.1	µg/L	1	0	107	50 - 150%	PASS		



## Acid Extractable Compounds

## QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE		ACCURACY			PRECISION		QA CODEc
							LEVEL	RESULT	%	LIMITS	%	LIMITS		
<b>Sample ID: 108481-BS2</b>		<b>QAQC Procedural Blank</b>				<b>Matrix: BlankMatrix</b>			<b>Sampled:</b>			<b>Received:</b>		
Method: EPA 625.1		Batch ID: O-42022				Prepared: 21-Jul-23			Analyzed: 01-Sep-23					
(2,4,6-Tribromophenol)	Total	97	1			% Recovery	100	0	97	30 - 130%	PASS	4	30	PASS
(d5-Phenol)	Total	84	1			% Recovery	100	0	84	0 - 130%	PASS	21	30	PASS
2,4,5-Trichlorophenol	Total	0.753	1	0.05	0.1	µg/L	1	0	75	30 - 130%	PASS	0	30	PASS
2,4,6-Trichlorophenol	Total	0.814	1	0.05	0.1	µg/L	1	0	81	56 - 118%	PASS	1	30	PASS
2,4-Dichlorophenol	Total	0.746	1	0.05	0.1	µg/L	1	0	75	51 - 117%	PASS	3	30	PASS
2,4-Dinitrophenol	Total	0.727	1	0.1	0.2	µg/L	1	0	73	0 - 152%	PASS	4	30	PASS
2,6-Dichlorophenol	Total	0.371	1	0.05	0.1	µg/L	0.5	0	74	30 - 130%	PASS	4	30	PASS
2,6-Di-tert-butyl-4-methylphenol	Total	1.04	1	0.05	0.1	µg/L	1	0	104	50 - 150%	PASS	0	30	PASS
2,6-Di-tert-butylphenol	Total	0.961	1	0.05	0.1	µg/L	1	0	96	50 - 150%	PASS	4	30	PASS
2-Chlorophenol	Total	0.591	1	0.05	0.1	µg/L	1	0	59	41 - 110%	PASS	7	30	PASS
2-Methyl-4,6-dinitrophenol	Total	0.828	1	0.1	0.2	µg/L	1	0	83	0 - 141%	PASS	2	30	PASS
2-Methylphenol	Total	0.6	1	0.1	0.2	µg/L	1	0	60	40 - 117%	PASS	3	30	PASS
2-Nitrophenol	Total	0.619	1	0.1	0.2	µg/L	1	0	62	40 - 117%	PASS	2	30	PASS
3+4-Methylphenol	Total	0.614	1	0.1	0.2	µg/L	1	0	61	0 - 130%	PASS	5	30	PASS
4-Chloro-3-methylphenol	Total	0.664	1	0.1	0.2	µg/L	1	0	66	51 - 128%	PASS	0	30	PASS
4-Nitrophenol	Total	0.935	1	0.1	0.2	µg/L	1	0	94	10 - 164%	PASS	0	30	PASS
6-tert-butyl-2,4-dimethylphenol	Total	0.925	1	0.05	0.1	µg/L	1	0	93	50 - 150%	PASS	2	30	PASS
Benzoic Acid	Total	0.138	1	0.1	0.2	µg/L	1	0	14	2 - 145%	PASS	13	30	PASS
Benzyl Alcohol	Total	0.592	1	0.1	0.2	µg/L	1	0	59	43 - 148%	PASS	5	30	PASS
Pentachlorophenol	Total	0.683	1	0.05	0.1	µg/L	1	0	68	36 - 111%	PASS	0	30	PASS
Phenol	Total	0.495	1	0.1	0.2	µg/L	1	0	50	29 - 114%	PASS	6	30	PASS
p-tert-Butylphenol	Total	1.07	1	0.05	0.1	µg/L	1	0	107	50 - 150%	PASS	0	30	PASS

## Base/Neutral Extractable Compounds

## QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY	PRECISION	QA CODEc
							LEVEL	RESULT	%	LIMITS	%
<b>Sample ID: 108481-B1</b>		<b>QAQC Procedural Blank</b>			<b>Matrix: BlankMatrix</b>		<b>Sampled:</b>		<b>Received:</b>		
Method: EPA 625.1		Batch ID: O-42022		Prepared: 21-Jul-23		Analyzed: 01-Sep-23					
2-Chloronaphthalene	Total	ND	1	0.05	0.1	µg/L					
2-Nitroaniline	Total	ND	1	0.05	0.1	µg/L					
3-Nitroaniline	Total	ND	1	0.05	0.1	µg/L					
4-Bromophenylphenyl ether	Total	ND	1	0.05	0.1	µg/L					
4-Chloroaniline	Total	ND	1	0.05	0.1	µg/L					
4-Chlorophenylphenyl ether	Total	ND	1	0.05	0.1	µg/L					
4-Nitroaniline	Total	ND	1	0.05	0.1	µg/L					
Aniline	Total	ND	1	0.05	0.1	µg/L					
Benzidine	Total	ND	1	0.05	0.1	µg/L					
Bis(2-Chloroethoxy) methane	Total	ND	1	0.05	0.1	µg/L					
Bis(2-Chloroethyl) ether	Total	ND	1	0.05	0.1	µg/L					
Bis(2-Chloroisopropyl) ether	Total	ND	1	0.05	0.1	µg/L					
Dibenzofuran	Total	ND	1	0.05	0.1	µg/L					
Disalicylidenepropanediamine	Total	ND	1	0.05	0.1	µg/L					
Hexachloroethane	Total	ND	1	0.05	0.1	µg/L					
Nitrobenzene	Total	ND	1	0.05	0.1	µg/L					
N-Nitrosodi-n-propylamine	Total	ND	1	0.05	0.1	µg/L					
N-Nitrosodiphenylamine	Total	ND	1	0.05	0.1	µg/L					

## Base/Neutral Extractable Compounds

## QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE		ACCURACY		PRECISION		QA CODEc
							LEVEL	RESULT	%	LIMITS	%	LIMITS	
<b>Sample ID: 108481-BS1</b>		<b>QAQC Procedural Blank</b>			<b>Matrix: BlankMatrix</b>			<b>Sampled:</b>			<b>Received:</b>		
Method: EPA 625.1		Batch ID: O-42022			Prepared: 21-Jul-23			Analyzed: 01-Sep-23					
2-Chloronaphthalene	Total	0.836	1	0.05	0.1	µg/L	1	0	84	53 - 130%	PASS		
2-Nitroaniline	Total	0.756	1	0.05	0.1	µg/L	1	0	76	69 - 114%	PASS		
3-Nitroaniline	Total	0.748	1	0.05	0.1	µg/L	1	0	75	23 - 137%	PASS		
4-Bromophenylphenyl ether	Total	0.951	1	0.05	0.1	µg/L	1	0	95	61 - 132%	PASS		
4-Chloroaniline	Total	0.67	1	0.05	0.1	µg/L	1	0	67	50 - 150%	PASS		
4-Chlorophenylphenyl ether	Total	0.962	1	0.05	0.1	µg/L	1	0	96	63 - 130%	PASS		
4-Nitroaniline	Total	0.738	1	0.05	0.1	µg/L	1	0	74	10 - 159%	PASS		
Aniline	Total	0.543	1	0.05	0.1	µg/L	1	0	54	50 - 150%	PASS		
Benzidine	Total	0.00381	1	0.05	0.1	µg/L	1	0	0	0 - 125%	PASS		
Bis(2-Chloroethoxy) methane	Total	0.663	1	0.05	0.1	µg/L	1	0	66	66 - 122%	PASS		
Bis(2-Chloroethyl) ether	Total	0.553	1	0.05	0.1	µg/L	1	0	55	43 - 127%	PASS		
Bis(2-Chloroisopropyl) ether	Total	0.784	1	0.05	0.1	µg/L	1	0	78	49 - 128%	PASS		
Dibenzofuran	Total	0.62	1	0.05	0.1	µg/L	1	0	62	50 - 150%	PASS		
Disalicylideneprapanediamine	Total	41.9	1	0.05	0.1	µg/L	50	0	84	50 - 150%	PASS		
Hexachloroethane	Total	0.816	1	0.05	0.1	µg/L	1	0	82	27 - 130%	PASS		
Nitrobenzene	Total	0.633	1	0.05	0.1	µg/L	1	0	63	54 - 111%	PASS		
N-Nitrosodi-n-propylamine	Total	0.696	1	0.05	0.1	µg/L	1	0	70	61 - 152%	PASS		
N-Nitrosodiphenylamine	Total	0.998	1	0.05	0.1	µg/L	1	0	100	49 - 142%	PASS		

## Base/Neutral Extractable Compounds

## QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY		PRECISION		QA CODEc	
									%	LIMITS	%	LIMITS		
<b>Sample ID: 108481-BS2</b>		<b>QAQC Procedural Blank</b>			<b>Matrix: BlankMatrix</b>			<b>Sampled:</b>		<b>Received:</b>				
Method: EPA 625.1		Batch ID: O-42022			Prepared: 21-Jul-23		Analyzed: 01-Sep-23							
2-Chloronaphthalene	Total	0.816	1	0.05	0.1	µg/L	1	0	82	53 - 130%	PASS	2	30	PASS
2-Nitroaniline	Total	0.775	1	0.05	0.1	µg/L	1	0	77	69 - 114%	PASS	3	30	PASS
3-Nitroaniline	Total	0.757	1	0.05	0.1	µg/L	1	0	76	23 - 137%	PASS	1	30	PASS
4-Bromophenylphenyl ether	Total	0.944	1	0.05	0.1	µg/L	1	0	94	61 - 132%	PASS	1	30	PASS
4-Chloroaniline	Total	0.657	1	0.05	0.1	µg/L	1	0	66	50 - 150%	PASS	2	30	PASS
4-Chlorophenylphenyl ether	Total	0.944	1	0.05	0.1	µg/L	1	0	94	63 - 130%	PASS	2	30	PASS
4-Nitroaniline	Total	0.773	1	0.05	0.1	µg/L	1	0	77	10 - 159%	PASS	4	30	PASS
Aniline	Total	0.502	1	0.05	0.1	µg/L	1	0	50	50 - 150%	PASS	8	30	PASS
Benzidine	Total	0.00388	1	0.05	0.1	µg/L	1	0	0	0 - 125%	PASS	0	30	PASS
Bis(2-Chloroethoxy) methane	Total	0.655	1	0.05	0.1	µg/L	1	0	66	66 - 122%	PASS	0	30	PASS
Bis(2-Chloroethyl) ether	Total	0.526	1	0.05	0.1	µg/L	1	0	53	43 - 127%	PASS	4	30	PASS
Bis(2-Chloroisopropyl) ether	Total	0.708	1	0.05	0.1	µg/L	1	0	71	49 - 128%	PASS	9	30	PASS
Dibenzofuran	Total	0.669	1	0.05	0.1	µg/L	1	0	67	50 - 150%	PASS	8	30	PASS
Disalicylidenepropanediamine	Total	49.8	1	0.05	0.1	µg/L	50	0	100	50 - 150%	PASS	17	30	PASS
Hexachloroethane	Total	0.771	1	0.05	0.1	µg/L	1	0	77	27 - 130%	PASS	6	30	PASS
Nitrobenzene	Total	0.623	1	0.05	0.1	µg/L	1	0	62	54 - 111%	PASS	2	30	PASS
N-Nitrosodi-n-propylamine	Total	0.68	1	0.05	0.1	µg/L	1	0	68	61 - 152%	PASS	3	30	PASS
N-Nitrosodiphenylamine	Total	0.989	1	0.05	0.1	µg/L	1	0	99	49 - 142%	PASS	1	30	PASS

## Polynuclear Aromatic Hydrocarbons

## QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY	PRECISION	QA CODEc
							LEVEL	RESULT	%	LIMITS	%
<b>Sample ID: 108481-B1</b>		<b>QAQC Procedural Blank</b>			<b>Matrix: BlankMatrix</b>		<b>Sampled:</b>		<b>Received:</b>		
	Method: EPA 625.1					Batch ID: O-42022	Prepared: 21-Jul-23	Analyzed: 01-Sep-23			
(d10-Acenaphthene)	Total	100	1			% Recovery	100	100	27 - 133%	PASS	
(d10-Phenanthrene)	Total	99	1			% Recovery	100	99	43 - 129%	PASS	
(d12-Chrysene)	Total	98	1			% Recovery	100	98	52 - 144%	PASS	
(d12-Perylene)	Total	103	1			% Recovery	100	103	36 - 161%	PASS	
(d8-Naphthalene)	Total	93	1			% Recovery	100	93	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					

## Polynuclear Aromatic Hydrocarbons

## QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY		PRECISION		QA CODE <sup>c</sup>
							LEVEL	RESULT	%	LIMITS	%	LIMITS	
Dibenzothiophene	Total	ND	1	0.001	0.005	µg/L							
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: 108481-BS1</b>		<b>QAQC Procedural Blank</b>				<b>Matrix: BlankMatrix</b>			<b>Sampled:</b>		<b>Received:</b>		
Method: EPA 625.1		Batch ID: O-42022				Prepared: 21-Jul-23			Analyzed: 01-Sep-23				
(d10-Acenaphthene)	Total	109	1			% Recovery	100	0	109	27 - 133%	PASS		
(d10-Phenanthrene)	Total	104	1			% Recovery	100	0	104	43 - 129%	PASS		
(d12-Chrysene)	Total	100	1			% Recovery	100	0	100	52 - 144%	PASS		
(d12-Perylene)	Total	106	1			% Recovery	100	0	106	36 - 161%	PASS		
(d8-Naphthalene)	Total	99	1			% Recovery	100	0	99	25 - 125%	PASS		
1-Methylnaphthalene	Total	0.564	1	0.001	0.005	µg/L	0.5	0	113	31 - 128%	PASS		
1-Methylphenanthrene	Total	0.572	1	0.001	0.005	µg/L	0.5	0	114	66 - 127%	PASS		
2,3,5-Trimethylnaphthalene	Total	0.592	1	0.001	0.005	µg/L	0.5	0	118	55 - 122%	PASS		
2,6-Dimethylnaphthalene	Total	0.571	1	0.001	0.005	µg/L	0.5	0	114	48 - 120%	PASS		
2-Methylnaphthalene	Total	1.67	1	0.001	0.005	µg/L	1.5	0	111	47 - 130%	PASS		
Acenaphthene	Total	1.73	1	0.001	0.005	µg/L	1.5	0	115	53 - 131%	PASS		
Acenaphthylene	Total	1.89	1	0.001	0.005	µg/L	1.5	0	126	43 - 140%	PASS		
Anthracene	Total	1.67	1	0.001	0.005	µg/L	1.5	0	111	58 - 135%	PASS		
Benz[a]anthracene	Total	1.7	1	0.001	0.005	µg/L	1.5	0	113	55 - 145%	PASS		
Benzo[a]pyrene	Total	1.73	1	0.001	0.005	µg/L	1.5	0	115	51 - 143%	PASS		
Benzo[b]fluoranthene	Total	1.74	1	0.001	0.005	µg/L	1.5	0	116	46 - 165%	PASS		
Benzo[e]pyrene	Total	0.551	1	0.001	0.005	µg/L	0.5	0	110	42 - 152%	PASS		
Benzo[g,h,i]perylene	Total	1.73	1	0.001	0.005	µg/L	1.5	0	115	63 - 133%	PASS		
Benzo[k]fluoranthene	Total	1.69	1	0.001	0.005	µg/L	1.5	0	113	56 - 145%	PASS		
Biphenyl	Total	0.565	1	0.001	0.005	µg/L	0.5	0	113	56 - 119%	PASS		
Chrysene	Total	1.56	1	0.001	0.005	µg/L	1.5	0	104	56 - 141%	PASS		
Dibenz[a,h]anthracene	Total	1.86	1	0.001	0.005	µg/L	1.5	0	124	55 - 150%	PASS		
Dibenzo[a,l]pyrene	Total	0.455	1	0.001	0.005	µg/L	0.5	0	91	50 - 150%	PASS		

## Polynuclear Aromatic Hydrocarbons

## QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY		PRECISION		QA CODEc
							LEVEL	RESULT	%	LIMITS	%	LIMITS	
Dibenzothiophene	Total	0.563	1	0.001	0.005	µg/L	0.5	0	113	46 - 126%	PASS		
Fluoranthene	Total	1.78	1	0.001	0.005	µg/L	1.5	0	119	60 - 146%	PASS		
Fluorene	Total	1.78	1	0.001	0.005	µg/L	1.5	0	119	58 - 131%	PASS		
Indeno[1,2,3-cd]pyrene	Total	1.81	1	0.001	0.005	µg/L	1.5	0	121	50 - 151%	PASS		
Naphthalene	Total	1.55	1	0.001	0.005	µg/L	1.5	0	103	41 - 126%	PASS		
Perylene	Total	0.578	1	0.001	0.005	µg/L	0.5	0	116	48 - 141%	PASS		
Phenanthrene	Total	1.65	1	0.001	0.005	µg/L	1.5	0	110	67 - 127%	PASS		
Pyrene	Total	1.79	1	0.001	0.005	µg/L	1.5	0	119	54 - 156%	PASS		



## Polynuclear Aromatic Hydrocarbons

## QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY		PRECISION		QA CODEc	
									%	LIMITS	%	LIMITS		
<b>Sample ID: 108481-BS2</b>		<b>QAQC Procedural Blank</b>				<b>Matrix: BlankMatrix</b>			<b>Sampled:</b>		<b>Received:</b>			
Method: EPA 625.1		Batch ID: O-42022				Prepared: 21-Jul-23			Analyzed: 01-Sep-23					
(d10-Acenaphthene)	Total	107	1			% Recovery	100	0	107	27 - 133%	PASS	2	30	PASS
(d10-Phenanthrene)	Total	105	1			% Recovery	100	0	105	43 - 129%	PASS	1	30	PASS
(d12-Chrysene)	Total	101	1			% Recovery	100	0	101	52 - 144%	PASS	1	30	PASS
(d12-Perylene)	Total	107	1			% Recovery	100	0	107	36 - 161%	PASS	1	30	PASS
(d8-Naphthalene)	Total	96	1			% Recovery	100	0	96	25 - 125%	PASS	3	30	PASS
1-Methylnaphthalene	Total	0.547	1	0.001	0.005	µg/L	0.5	0	109	31 - 128%	PASS	4	30	PASS
1-Methylphenanthrene	Total	0.568	1	0.001	0.005	µg/L	0.5	0	114	66 - 127%	PASS	0	30	PASS
2,3,5-Trimethylnaphthalene	Total	0.581	1	0.001	0.005	µg/L	0.5	0	116	55 - 122%	PASS	2	30	PASS
2,6-Dimethylnaphthalene	Total	0.565	1	0.001	0.005	µg/L	0.5	0	113	48 - 120%	PASS	1	30	PASS
2-Methylnaphthalene	Total	1.62	1	0.001	0.005	µg/L	1.5	0	108	47 - 130%	PASS	2	30	PASS
Acenaphthene	Total	1.69	1	0.001	0.005	µg/L	1.5	0	113	53 - 131%	PASS	2	30	PASS
Acenaphthylene	Total	1.86	1	0.001	0.005	µg/L	1.5	0	124	43 - 140%	PASS	2	30	PASS
Anthracene	Total	1.65	1	0.001	0.005	µg/L	1.5	0	110	58 - 135%	PASS	1	30	PASS
Benz[a]anthracene	Total	1.71	1	0.001	0.005	µg/L	1.5	0	114	55 - 145%	PASS	1	30	PASS
Benzo[a]pyrene	Total	1.72	1	0.001	0.005	µg/L	1.5	0	115	51 - 143%	PASS	0	30	PASS
Benzo[b]fluoranthene	Total	1.72	1	0.001	0.005	µg/L	1.5	0	115	46 - 165%	PASS	1	30	PASS
Benzo[e]pyrene	Total	0.546	1	0.001	0.005	µg/L	0.5	0	109	42 - 152%	PASS	1	30	PASS
Benzo[g,h,i]perylene	Total	1.7	1	0.001	0.005	µg/L	1.5	0	113	63 - 133%	PASS	2	30	PASS
Benzo[k]fluoranthene	Total	1.67	1	0.001	0.005	µg/L	1.5	0	111	56 - 145%	PASS	2	30	PASS
Biphenyl	Total	0.556	1	0.001	0.005	µg/L	0.5	0	111	56 - 119%	PASS	2	30	PASS
Chrysene	Total	1.56	1	0.001	0.005	µg/L	1.5	0	104	56 - 141%	PASS	1	30	PASS
Dibenz[a,h]anthracene	Total	1.87	1	0.001	0.005	µg/L	1.5	0	125	55 - 150%	PASS	1	30	PASS
Dibenzo[a,l]pyrene	Total	0.455	1	0.001	0.005	µg/L	0.5	0	91	50 - 150%	PASS	0	30	PASS

## Polynuclear Aromatic Hydrocarbons

## QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY			PRECISION		QA CODE <sup>c</sup>
							LEVEL	RESULT	%	LIMITS	%	LIMITS		
Dibenzothiophene	Total	0.555	1	0.001	0.005	µg/L	0.5	0	111	46 - 126%	PASS	2	30	PASS
Fluoranthene	Total	1.77	1	0.001	0.005	µg/L	1.5	0	118	60 - 146%	PASS	1	30	PASS
Fluorene	Total	1.78	1	0.001	0.005	µg/L	1.5	0	119	58 - 131%	PASS	0	30	PASS
Indeno[1,2,3-cd]pyrene	Total	1.81	1	0.001	0.005	µg/L	1.5	0	121	50 - 151%	PASS	0	30	PASS
Naphthalene	Total	1.5	1	0.001	0.005	µg/L	1.5	0	100	41 - 126%	PASS	3	30	PASS
Perylene	Total	0.569	1	0.001	0.005	µg/L	0.5	0	114	48 - 141%	PASS	2	30	PASS
Phenanthrene	Total	1.62	1	0.001	0.005	µg/L	1.5	0	108	67 - 127%	PASS	2	30	PASS
Pyrene	Total	1.77	1	0.001	0.005	µg/L	1.5	0	118	54 - 156%	PASS	1	30	PASS

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# PHYSICS

## TENTATIVELY IDENTIFIED COMPOUNDS

ENVIRONMENTAL LABORATORIES, INC.

*Innovative Solutions for Nature*

Sample ID: 108482

Retention Time	Area (% of total)	Concentration (ng/L)	Library/ID	Cas Number	Match Quality (%)
34.0554	6.3767	1111	Anthracene-D10-	1719-06-8	96
10.2488	1.0930	190	1,5-Heptadien-4-one, 3,3,6-trimethyl-	546-49-6	89
10.0592	0.9397	164	Cyclohexane, 1-methyl-2-propyl-	4291-79-6	90
10.0592	0.8632	150	m-Menthane, (1S,3S)-(+)-	13837-67-7	91
26.3532	0.7914	138	Diethyl Phthalate	84-66-2	98

Concentration estimated using the response for Anthracene-d10

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Sample ID: Lab Blank B1\_42022

Retention Time	Area (% of total)	Concentration (ng/L)	Library/ID	Cas Number	Match Quality (%)
34.0553	7.2385	1111	Anthracene-D10-	1719-06-8	96
10.2498	1.4446	222	1,5-Heptadien-4-one, 3,3,6-trimethyl-	546-49-6	89
26.3533	1.3026	200	Diethyl Phthalate	84-66-2	98

Concentration estimated using the response for Anthracene-d10

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# PERFORMANCE CHAIN OF CUSTODY

TERRA ENVIRONMENTAL LABORATORIES, INC. AURA

*Innovative Solutions for Nature*

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Project Iteration ID: 1407003-421  
 Client Name: Eurofins Eaton Analytical  
 Project Name: RED-HILL Project # 38001111 Job # 380-55362-1  
 COC Page Number: 2 of 2  
 Bottle Label Color: NA

**Sample Receipt Summary**

**Receiving Info**

1. Initials Received By: RGH
2. Date Received: 7/20/23
3. Time Received: 1125
4. Client Name: Eurofins
5. Courier Information: (Please circle)
  - Client
  - UPS
  - Area Fast
  - DRS
  - FedEx
  - GSO/GLS
  - Ontrac
  - PAMS
  - PHYSIS Driver:
  - i. Start Time: \_\_\_\_\_
  - ii. End Time: \_\_\_\_\_
  - iii. Total Mileage: \_\_\_\_\_
  - iv. Number of Pickups: \_\_\_\_\_
6. Container Information: (Please put the # of containers or circle none)
  - Cooler
  - Styrofoam Cooler
  - Boxes
  - None
  - Carboy(s)
  - Carboy Trash Can(s)
  - Carboy Cap(s)
  - Other \_\_\_\_\_
7. What type of ice was used: (Please circle any that apply)
  - Wet Ice
  - Blue Ice
  - Dry Ice
  - Water
  - None
8. Randomly Selected Samples Temperature (°C): 0, 8  
 Used I/R Thermometer # 1-2

**Inspection Info**

1. Initials Inspected By: RGH

**Sample Integrity Upon Receipt:**

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

Notes:





**Eurofins Eaton Analytical Pomona**

941 Corporate Center Drive  
 Pomona, CA 91768-2642  
 Phone: 626-386-1100

**Chain of Custody Record**

**eurofins** Environment Testing

<b>Client Information</b>		Sampler: <i>Bryson Nalekamoto</i>		Lab PM: Arada, Rachelle		Carrier Tracking No(s):		COC No: 380-21929-1845.2	
Client Contact: Dr. Ron Fenstermacher		Phone: <i>(909) 748-5340</i>		E-Mail: <i>Rachelle.Arada@et.eurofinsus.com</i>		State of Origin:		Page: 2 of 2	
Company: City & County of Honolulu				PWSID:		<b>Analysis Requested</b>			
Address: 630 South Beretania Street Chemistry Lab		Due Date Requested:		SUBCONTRACT - 8015 Ethanol		SUBCONTRACT - 625 PAH Physils LL (EAL) + TICs		SUBCONTRACT - 625 Base Neutral LL (EAL) Physils	
City: Honolulu		TAT Requested (days):		SUBCONTRACT - 625 Acid LL (EAL) Physils		584.3_SIM_PREC - Low Level TCPEB/DBCP		SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)	
State, Zip: HI, 96843		Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No		PO #: C20525101 exp 05312023		594.1_PREC - Local Method		Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Y - Trizma Z - other (specify)	
Phone: 808-748-5091 (Tel)		Project #: 38001111		WO #:		Total Number of Containers		Other:	
Email: RFENSTEMACHER@hbws.org		SSOW#:		Project #: 38001111		Sample Identification		Special Instructions/Note:	
Project Name: RED-HILL		Site: Hawaii		Sample Date		Sample Time		Sample Type (C=Comp, G=gran)	
Matrix (W=water, D=soil, O=waste/sol, ST=Sludge, APAL=)		Preservation Code		Filter Number (Yes or No)		Retention (Yes or No)		Total Number of Containers	
KAAMILO WELLS									
AIEA GULCH WELLS PUMP 2									
AIEA WELLS P (260)									
HALAWA WELLS UNITS 1 & 2		<i>7/19/23 0900</i>		<i>G</i>		<i>Water</i>		<i>3 2 2 2 3 3</i>	
MOANALUA WELLS									
TB: KAAMILO WELLS									
TB: AIEA GULCH WELLS PUMP 2									
TB: AIEA WELLS PUMPS 1&2(260)									
TB: HALAWA WELLS UNITS 1 & 2		<i>7/18/23</i>				<i>Water</i>		<i>2 2</i>	
TB: MOANALUA WELLS									
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological				Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months					
Deliverable Requested: I, II, III, IV, Other (specify)				Special Instructions/QC Requirements: <i>① 7727 7063 6939</i> <i>② 7727 7063 7328</i>					
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment: <i>FED EX ③ 7727 7063 7339</i>			
Relinquished by: <i>Bryson Nalek</i>		Date/Time: <i>7/19/23 1030</i>		Company: <i>HBWS</i>		Received by: <i>G. REITNER</i>		Date/Time: <i>07/19/2023 10:00</i>	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:	
Relinquished by:		Date/Time:		Company:		Received by:		Date/Time:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: <i>① 5.1°-0.2°-4.9</i> <i>② 2.9°-0.1°-2.7°</i> <i>③ 4.6°-0.2°-4.4°</i>					



**Client Information (Sub Contract Lab)**

Client Contact: **Shipping/Receiving** Phone: \_\_\_\_\_  
 Company: **Eurofins Eaton Analytical**  
 Address: **110 S Hill Street,**  
 City: **South Bend**  
 State, Zip: **IN, 46617**  
 Phone: **574-233-4777(Tel) 574-233-8207(Fax)**  
 Email: \_\_\_\_\_  
 Project Name: **RED-HILL**  
 Site: **Honolulu BWS Sites**

Sampler: \_\_\_\_\_ Lab Pkt: **Arada, Rachelle**  
 Date Requested: **8/8/2023** TAT Requested (days): \_\_\_\_\_  
 E-Mail: **Rachelle.Arada@et.eurofins.com**  
 Accreditations Required (See note): **State - Hawaii**

Carrier Tracking No(s): \_\_\_\_\_ COC No: **380-64468-1**  
 State of Origin: **Hawaii** Page: **Page 1 of 1**  
 Job #: **390-55362-1**

**Analysis Requested**

Field Filtered Sample (Yes or No) \_\_\_\_\_  
 Perform MS/MSD (Yes or No) **245.1/245.1\_Prep Mercury by 245.1**

Preservation Codes:  
 A - HCL  
 B - NaOH  
 C - Zn Acetate  
 D - Nitric Acid  
 E - Nitric Acid  
 F - MeOH  
 G - Amchlor  
 H - Ascorbic Acid  
 I - Ice  
 J - DI Water  
 K - EDTA  
 L - EDTA  
 M - Hexane  
 N - None  
 O - AsHAc2  
 P - Na2OAS  
 Q - Na2SO3  
 R - Na2SO4  
 S - H2SO4  
 T - TSP Dodecylhydrate  
 U - Acetone  
 V - MeOH  
 W - pH 4.5  
 Y - Trizma  
 Z - other (specify) \_\_\_\_\_

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Mercur, Selenid, Osmatist, Br-Titan, Asch)	Preservation Code:	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Total Number of containers	Special Instructions/Note:
HALAWA WELLS UNITS 1 & 2 (390-55362-1)	7/18/23	09:00	Hawaiian	Water		X		1	

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

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

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

Empty Kit Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_ Method of Shipment: \_\_\_\_\_  
 Relinquished by: **Gail Sarno** Date/Time: **7/18/23 7:50** Company: \_\_\_\_\_  
 Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company: \_\_\_\_\_  
 Relinquished by: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Company: \_\_\_\_\_  
 Custody Seals Intact: **Δ Yes Δ No** **Stamps Provided Sample Containers**  
 Coder Temperature(s) °C and Other Remarks: **pH Acceptable**  
 Amount



# Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-55362-1

**Login Number: 55362**  
**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	



# Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-55362-1

**Login Number: 55362**  
**List Number: 2**  
**Creator: Pehling-Wright, Penny**

**List Source: Eurofins Eaton Analytical South Bend**  
**List Creation: 07/21/23 03:47 PM**

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.	False	Refer to Job Narrative for details.
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	False	Client provided containers

