

ANALYTICAL REPORT

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Laboratory Job ID: 380-18990-1
Client Project/Site: RED-HILL

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

Attn: Mr. Erwin Kawata



Authorized for release by:
10/9/2022 5:09:58 PM

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

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



Rachelle Arada
Manager of Project Management
10/9/2022 5:09:58 PM





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Definitions/Glossary

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

Job ID: 380-18990-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
^3-	Reporting Limit Check Standard is outside acceptance limits, low biased.
^3+	Reporting Limit Check Standard is outside acceptance limits, high biased
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.

Glossary

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

Case Narrative

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

Job ID: 380-18990-1

Job ID: 380-18990-1

Laboratory: Eurofins Eaton Monrovia

Narrative

Job Narrative 380-18990-1

Comments

No additional comments.

Receipt

The samples were received on 8/30/2022 10:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.0° C.

GC/MS Semi VOA

Method 525.2: MRL for preparation batch 380-16038 and analytical batch 380-16407 recovery is below acceptance limits for Caffeine. HALAWA WELLS PUMP 1 (380-18990-1) and (MRL 380-16038/2-A)

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

Subcontract non-Sister

See attached subcontract report.

Organic Prep

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

Subcontract Work

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

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

Detection Summary

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

Job ID: 380-18990-1

Client Sample ID: HALAWA WELLS PUMP 1

Lab Sample ID: 380-18990-1

No Detections.

Client Sample ID: TB: HALAWA WELLS PUMP 1

Lab Sample ID: 380-18990-2

No Detections.

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

This Detection Summary does not include radiochemical test results.

Eurofins Eaton Monrovia

Client Sample Results

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

Job ID: 380-18990-1

Client Sample ID: HALAWA WELLS PUMP 1

Lab Sample ID: 380-18990-1

Date Collected: 08/29/22 09:30

Matrix: Drinking Water

Date Received: 08/30/22 10:00

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:27	1
2,4'-DDE	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:27	1
2,4'-DDT	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:27	1
2,4-Dinitrotoluene	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:27	1
2,6-Dinitrotoluene	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:27	1
4,4'-DDD	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:27	1
4,4'-DDE	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:27	1
4,4'-DDT	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:27	1
Acenaphthene	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:27	1
Acenaphthylene	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:27	1
Acetochlor	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:27	1
Alachlor	ND		0.049	ug/L		09/02/22 09:06	09/07/22 12:27	1
alpha-BHC	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:27	1
alpha-Chlordane	ND		0.049	ug/L		09/02/22 09:06	09/07/22 12:27	1
Anthracene	ND		0.020	ug/L		09/02/22 09:06	09/07/22 12:27	1
Atrazine	ND		0.049	ug/L		09/02/22 09:06	09/07/22 12:27	1
Benz(a)anthracene	ND		0.049	ug/L		09/02/22 09:06	09/07/22 12:27	1
Benzo[a]pyrene	ND		0.020	ug/L		09/02/22 09:06	09/07/22 12:27	1
Benzo[b]fluoranthene	ND		0.020	ug/L		09/02/22 09:06	09/07/22 12:27	1
Benzo[g,h,i]perylene	ND		0.049	ug/L		09/02/22 09:06	09/07/22 12:27	1
Benzo[k]fluoranthene	ND		0.020	ug/L		09/02/22 09:06	09/07/22 12:27	1
beta-BHC	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:27	1
Bromacil	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:27	1
Butachlor	ND		0.049	ug/L		09/02/22 09:06	09/07/22 12:27	1
Butylbenzylphthalate	ND		0.49	ug/L		09/02/22 09:06	09/07/22 12:27	1
Caffeine	ND	^3-	0.049	ug/L		09/02/22 09:06	09/07/22 12:27	1
Chlorobenzilate	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:27	1
Chloroneb	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:27	1
Chlorothalonil (Draconil, Bravo)	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:27	1
Chlorpyrifos	ND		0.049	ug/L		09/02/22 09:06	09/07/22 12:27	1
Chrysene	ND		0.020	ug/L		09/02/22 09:06	09/07/22 12:27	1
delta-BHC	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:27	1
Di(2-ethylhexyl)adipate	ND		0.59	ug/L		09/02/22 09:06	09/07/22 12:27	1
Bis(2-ethylhexyl) phthalate	ND		0.59	ug/L		09/02/22 09:06	09/07/22 12:27	1
Diazinon (Qualitative)	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:27	1
Dibenz(a,h)an hracene	ND		0.049	ug/L		09/02/22 09:06	09/07/22 12:27	1
Diclorvos (DDVP)	ND		0.049	ug/L		09/02/22 09:06	09/07/22 12:27	1
Dieldrin	ND		0.20	ug/L		09/02/22 09:06	09/07/22 12:27	1
Diethylphthalate	ND		0.49	ug/L		09/02/22 09:06	09/07/22 12:27	1
Dimethoate	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:27	1
Dimethylphalate	ND		0.49	ug/L		09/02/22 09:06	09/07/22 12:27	1
Di-n-butyl phthalate	ND		0.99	ug/L		09/02/22 09:06	09/07/22 12:27	1
Di-n-octyl phthalate	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:27	1
Endosulfan I (Alpha)	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:27	1
Endosulfan II (Beta)	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:27	1
Endosulfan sulfate	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:27	1
Endrin	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:27	1
Endrin aldehyde	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:27	1
EPTC	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:27	1

Client Sample Results

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

Job ID: 380-18990-1

Client Sample ID: HALAWA WELLS PUMP 1

Lab Sample ID: 380-18990-1

Date Collected: 08/29/22 09:30

Matrix: Drinking Water

Date Received: 08/30/22 10:00

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoranthene	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:27	1
Fluorene	ND		0.049	ug/L		09/02/22 09:06	09/07/22 12:27	1
gamma-Chlordane	ND		0.049	ug/L		09/02/22 09:06	09/07/22 12:27	1
Heptachlor	ND	^3+	0.040	ug/L		09/02/22 09:06	09/07/22 12:27	1
Heptachlor epoxide (isomer B)	ND		0.049	ug/L		09/02/22 09:06	09/07/22 12:27	1
Hexachlorobenzene	ND		0.049	ug/L		09/02/22 09:06	09/07/22 12:27	1
Hexachlorocyclopentadiene	ND		0.049	ug/L		09/02/22 09:06	09/07/22 12:27	1
Indeno[1,2,3-cd]pyrene	ND		0.049	ug/L		09/02/22 09:06	09/07/22 12:27	1
Isophorone	ND		0.49	ug/L		09/02/22 09:06	09/07/22 12:27	1
Lindane	ND		0.040	ug/L		09/02/22 09:06	09/07/22 12:27	1
Malathion	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:27	1
Methoxychlor	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:27	1
Metolachlor	ND		0.049	ug/L		09/02/22 09:06	09/07/22 12:27	1
Metribuzin	ND		0.049	ug/L		09/02/22 09:06	09/07/22 12:27	1
Molinate	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:27	1
Naphthalene	ND		0.30	ug/L		09/02/22 09:06	09/07/22 12:27	1
Parathion	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:27	1
Pendimethalin (Penoxaline)	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:27	1
Total Permethrin (mixed isomers)	ND		0.20	ug/L		09/02/22 09:06	09/07/22 12:27	1
Phenanthrene	ND		0.040	ug/L		09/02/22 09:06	09/07/22 12:27	1
Propachlor	ND		0.049	ug/L		09/02/22 09:06	09/07/22 12:27	1
Pyrene	ND		0.049	ug/L		09/02/22 09:06	09/07/22 12:27	1
Simazine	ND		0.049	ug/L		09/02/22 09:06	09/07/22 12:27	1
Terbacil	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:27	1
Terbutylazine	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:27	1
Thiobencarb	ND		0.20	ug/L		09/02/22 09:06	09/07/22 12:27	1
trans-Nonachlor	ND		0.049	ug/L		09/02/22 09:06	09/07/22 12:27	1
Trifluralin	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:27	1
1-Methylnaphthalene	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:27	1
2-Methylnaphthalene	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:27	1

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Tentatively Identified Compound	None		ug/L				09/02/22 09:06	09/07/22 12:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	99		70 - 130	09/02/22 09:06	09/07/22 12:27	1
Triphenylphosphate	111		70 - 130	09/02/22 09:06	09/07/22 12:27	1
Perylene-d12	95		70 - 130	09/02/22 09:06	09/07/22 12:27	1

Action Limit Summary

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

Job ID: 380-18990-1

Client Sample ID: HALAWA WELLS PUMP 1

Lab Sample ID: 380-18990-1

Compliance Check

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

Analyte	Result	Qualifier	Unit	EPAMCL	RL	Method	Prep Type
				Limit			
Alachlor	ND		ug/L	2	0.049	525.2	Total/NA
Atrazine	ND		ug/L	3	0.049	525.2	Total/NA
Benzo[a]pyrene	ND		ug/L	0.2	0.020	525.2	Total/NA
Di(2-ethylhexyl)adipate	ND		ug/L	400	0.59	525.2	Total/NA
Bis(2-ethylhexyl) phthalate	ND		ug/L	6	0.59	525.2	Total/NA
Endrin	ND		ug/L	2	0.099	525.2	Total/NA
Heptachlor	ND	^3+	ug/L	0.4	0.040	525.2	Total/NA
Heptachlor epoxide (isomer B)	ND		ug/L	0.2	0.049	525.2	Total/NA
Hexachlorobenzene	ND		ug/L	1	0.049	525.2	Total/NA
Hexachlorocyclopentadiene	ND		ug/L	50	0.049	525.2	Total/NA
Lindane	ND		ug/L	0.2	0.040	525.2	Total/NA
Methoxychlor	ND		ug/L	40	0.099	525.2	Total/NA
Simazine	ND		ug/L	4	0.049	525.2	Total/NA

Surrogate Summary

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

Job ID: 380-18990-1

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

Matrix: Drinking Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		2NMX (70-130)	TPP (70-130)	PRY (70-130)
380-18990-1	HALAWA WELLS PUMP 1	99	111	95

Surrogate Legend

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

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		2NMX (70-130)	TPP (70-130)	PRY (70-130)
380-18995-J-2-A MS	Matrix Spike	98	107	93
380-18997-J-1-A DU	Duplicate	98	102	85
LCS 380-16038/4-A	Lab Control Sample	97	108	99
LCSD 380-16038/5-A	Lab Control Sample Dup	98	107	99
MB 380-16038/1-A	Method Blank	101	108	97
MRL 380-16038/2-A	Lab Control Sample	100	110	95

Surrogate Legend

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

QC Sample Results

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

Job ID: 380-18990-1

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

Lab Sample ID: MB 380-16038/1-A
Matrix: Water
Analysis Batch: 16407

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 16038

Analyte	MB	MB	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
2,4'-DDD	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:06	1
2,4'-DDE	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:06	1
2,4'-DDT	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:06	1
2,4-Dinitrotoluene	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:06	1
2,6-Dinitrotoluene	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:06	1
4,4'-DDD	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:06	1
4,4'-DDE	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:06	1
4,4'-DDT	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:06	1
Acenaphthene	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:06	1
Acenaphthylene	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:06	1
Acetochlor	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:06	1
Alachlor	ND		0.050	ug/L		09/02/22 09:06	09/07/22 12:06	1
alpha-BHC	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:06	1
alpha-Chlordane	ND		0.050	ug/L		09/02/22 09:06	09/07/22 12:06	1
Anthracene	ND		0.020	ug/L		09/02/22 09:06	09/07/22 12:06	1
Atrazine	ND		0.050	ug/L		09/02/22 09:06	09/07/22 12:06	1
Benz(a)anthracene	ND		0.050	ug/L		09/02/22 09:06	09/07/22 12:06	1
Benzo[a]pyrene	ND		0.020	ug/L		09/02/22 09:06	09/07/22 12:06	1
Benzo[b]fluoranthene	ND		0.020	ug/L		09/02/22 09:06	09/07/22 12:06	1
Benzo[g,h,i]perylene	ND		0.050	ug/L		09/02/22 09:06	09/07/22 12:06	1
Benzo[k]fluoranthene	ND		0.020	ug/L		09/02/22 09:06	09/07/22 12:06	1
beta-BHC	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:06	1
Bromacil	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:06	1
Butachlor	ND		0.050	ug/L		09/02/22 09:06	09/07/22 12:06	1
Butylbenzylphthalate	ND		0.50	ug/L		09/02/22 09:06	09/07/22 12:06	1
Caffeine	ND		0.050	ug/L		09/02/22 09:06	09/07/22 12:06	1
Chlorobenzilate	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:06	1
Chloroneb	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:06	1
Chlorothalonil (Draconil, Bravo)	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:06	1
Chlorpyrifos	ND		0.050	ug/L		09/02/22 09:06	09/07/22 12:06	1
Chrysene	ND		0.020	ug/L		09/02/22 09:06	09/07/22 12:06	1
delta-BHC	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:06	1
Di(2-ethylhexyl)adipate	ND		0.60	ug/L		09/02/22 09:06	09/07/22 12:06	1
Bis(2-ethylhexyl) phthalate	ND		0.60	ug/L		09/02/22 09:06	09/07/22 12:06	1
Diazinon (Qualitative)	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:06	1
Dibenz(a,h)an hracene	ND		0.050	ug/L		09/02/22 09:06	09/07/22 12:06	1
Diclorvos (DDVP)	ND		0.050	ug/L		09/02/22 09:06	09/07/22 12:06	1
Dieldrin	ND		0.20	ug/L		09/02/22 09:06	09/07/22 12:06	1
Diethylphthalate	ND		0.50	ug/L		09/02/22 09:06	09/07/22 12:06	1
Dimethoate	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:06	1
Dimethylphalate	ND		0.50	ug/L		09/02/22 09:06	09/07/22 12:06	1
Di-n-butyl phthalate	ND		0.99	ug/L		09/02/22 09:06	09/07/22 12:06	1
Di-n-octyl phthalate	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:06	1
Endosulfan I (Alpha)	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:06	1
Endosulfan II (Beta)	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:06	1
Endosulfan sulfate	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:06	1
Endrin	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:06	1
Endrin aldehyde	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:06	1

QC Sample Results

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

Job ID: 380-18990-1

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

Lab Sample ID: MB 380-16038/1-A

Matrix: Water

Analysis Batch: 16407

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 16038

Analyte	MB	MB	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
EPTC	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:06	1
Fluoranthene	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:06	1
Fluorene	ND		0.050	ug/L		09/02/22 09:06	09/07/22 12:06	1
gamma-Chlordane	ND		0.050	ug/L		09/02/22 09:06	09/07/22 12:06	1
Heptachlor	ND		0.040	ug/L		09/02/22 09:06	09/07/22 12:06	1
Heptachlor epoxide (isomer B)	ND		0.050	ug/L		09/02/22 09:06	09/07/22 12:06	1
Hexachlorobenzene	ND		0.050	ug/L		09/02/22 09:06	09/07/22 12:06	1
Hexachlorocyclopentadiene	ND		0.050	ug/L		09/02/22 09:06	09/07/22 12:06	1
Indeno[1,2,3-cd]pyrene	ND		0.050	ug/L		09/02/22 09:06	09/07/22 12:06	1
Isophorone	ND		0.50	ug/L		09/02/22 09:06	09/07/22 12:06	1
Lindane	ND		0.040	ug/L		09/02/22 09:06	09/07/22 12:06	1
Malathion	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:06	1
Methoxychlor	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:06	1
Metolachlor	ND		0.050	ug/L		09/02/22 09:06	09/07/22 12:06	1
Metribuzin	ND		0.050	ug/L		09/02/22 09:06	09/07/22 12:06	1
Molinate	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:06	1
Naphthalene	ND		0.30	ug/L		09/02/22 09:06	09/07/22 12:06	1
Parathion	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:06	1
Pendimethalin (Penoxaline)	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:06	1
Total Permethrin (mixed isomers)	ND		0.20	ug/L		09/02/22 09:06	09/07/22 12:06	1
Phenanthrene	ND		0.040	ug/L		09/02/22 09:06	09/07/22 12:06	1
Propachlor	ND		0.050	ug/L		09/02/22 09:06	09/07/22 12:06	1
Pyrene	ND		0.050	ug/L		09/02/22 09:06	09/07/22 12:06	1
Simazine	ND		0.050	ug/L		09/02/22 09:06	09/07/22 12:06	1
Terbacil	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:06	1
Terbutylazine	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:06	1
Thiobencarb	ND		0.20	ug/L		09/02/22 09:06	09/07/22 12:06	1
trans-Nonachlor	ND		0.050	ug/L		09/02/22 09:06	09/07/22 12:06	1
Trifluralin	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:06	1
1-Methylnaphthalene	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:06	1
2-Methylnaphthalene	ND		0.099	ug/L		09/02/22 09:06	09/07/22 12:06	1

Tentatively Identified Compound	MB	MB	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
	Est. Result	Qualifier							
Unknown	1.55	T J	ug/L		2.38		09/02/22 09:06	09/07/22 12:06	1
n-Hexadecanoic acid	1.75	T J N	ug/L		5.92	57-10-3	09/02/22 09:06	09/07/22 12:06	1
Octadecanoic acid	3.21	T J N	ug/L		6.63	57-11-4	09/02/22 09:06	09/07/22 12:06	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
2-Nitro-m-xylene	101		70 - 130	09/02/22 09:06	09/07/22 12:06	1
Triphenylphosphate	108		70 - 130	09/02/22 09:06	09/07/22 12:06	1
Perylene-d12	97		70 - 130	09/02/22 09:06	09/07/22 12:06	1

Lab Sample ID: LCS 380-16038/4-A

Matrix: Water

Analysis Batch: 16407

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 16038

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
2,4'-DDD	1.99	2.20		ug/L		110	70 - 130

Eurofins Eaton Monrovia

QC Sample Results

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

Job ID: 380-18990-1

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

Lab Sample ID: LCS 380-16038/4-A

Matrix: Water

Analysis Batch: 16407

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 16038

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec Limits
	Added	Result	Qualifier				
2,4'-DDE	1.99	2.08		ug/L		104	70 - 130
2,4'-DDT	1.99	2.22		ug/L		112	70 - 130
2,4-Dinitrotoluene	1.99	1.99		ug/L		100	70 - 130
2,6-Dinitrotoluene	1.99	1.95		ug/L		98	70 - 130
4,4'-DDD	1.99	2.30		ug/L		115	70 - 130
4,4'-DDE	1.99	2.30		ug/L		116	70 - 130
4,4'-DDT	1.99	2.04		ug/L		102	70 - 130
Acenaphthene	1.99	1.96		ug/L		98	70 - 130
Acenaphthylene	1.99	1.96		ug/L		99	70 - 130
Acetochlor	1.99	2.17		ug/L		109	70 - 130
Alachlor	1.99	2.16		ug/L		108	70 - 130
alpha-BHC	1.99	2.15		ug/L		108	70 - 130
alpha-Chlordane	1.99	2.24		ug/L		112	70 - 130
Anthracene	1.99	2.17		ug/L		109	70 - 130
Atrazine	1.99	2.29		ug/L		115	70 - 130
Benz(a)anthracene	1.99	2.07		ug/L		104	70 - 130
Benzo[a]pyrene	1.99	2.13		ug/L		107	70 - 130
Benzo[b]fluoranthene	1.99	2.16		ug/L		108	70 - 130
Benzo[g,h,i]perylene	1.99	2.47		ug/L		124	70 - 130
Benzo[k]fluoranthene	1.99	2.13		ug/L		107	70 - 130
beta-BHC	1.99	2.10		ug/L		105	70 - 130
Bromacil	1.99	2.14		ug/L		107	70 - 130
Butachlor	1.99	2.26		ug/L		113	70 - 130
Butylbenzylphthalate	1.99	2.29		ug/L		115	70 - 130
Caffeine	1.99	0.964		ug/L		48	45 - 137
Chlorobenzilate	1.99	2.37		ug/L		119	70 - 130
Chloroneb	1.99	2.05		ug/L		103	70 - 130
Chlorothalonil (Draconil, Bravo)	1.99	2.32		ug/L		117	70 - 130
Chlorpyrifos	1.99	2.23		ug/L		112	70 - 130
Chrysene	1.99	2.14		ug/L		107	70 - 130
delta-BHC	1.99	2.00		ug/L		100	70 - 130
Di(2-ethylhexyl)adipate	1.99	2.42		ug/L		122	70 - 130
Bis(2-ethylhexyl) phthalate	1.99	2.25		ug/L		113	70 - 130
Diazinon (Qualitative)	1.99	1.75		ug/L		88	15 - 132
Dibenz(a,h)anthracene	1.99	2.39		ug/L		120	70 - 130
Diclorvos (DDVP)	1.99	2.28		ug/L		114	70 - 130
Dieldrin	1.99	2.08		ug/L		104	70 - 130
Diethylphthalate	1.99	2.08		ug/L		104	70 - 130
Dimethoate	1.99	0.899		ug/L		45	35 - 100
Dimethylphthalate	1.99	2.18		ug/L		109	70 - 130
Di-n-butyl phthalate	3.98	4.28		ug/L		107	70 - 130
Di-n-octyl phthalate	1.99	1.97		ug/L		99	70 - 130
Endosulfan I (Alpha)	1.99	2.15		ug/L		108	70 - 130
Endosulfan II (Beta)	1.99	2.31		ug/L		116	70 - 130
Endosulfan sulfate	1.99	2.12		ug/L		107	70 - 130
Endrin	1.99	2.23		ug/L		112	70 - 130
Endrin aldehyde	1.99	2.06		ug/L		103	70 - 130
EPTC	1.99	2.06		ug/L		104	70 - 130
Fluoranthene	1.99	2.26		ug/L		113	70 - 130

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QC Sample Results

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

Job ID: 380-18990-1

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

Lab Sample ID: LCS 380-16038/4-A

Matrix: Water

Analysis Batch: 16407

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 16038

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec	
							Limits	
Fluorene	1.99	2.13		ug/L		107	70 - 130	
gamma-Chlordane	1.99	2.28		ug/L		115	70 - 130	
Heptachlor	1.99	2.09		ug/L		105	70 - 130	
Heptachlor epoxide (isomer B)	1.99	2.18		ug/L		109	70 - 130	
Hexachlorobenzene	1.99	2.04		ug/L		102	70 - 130	
Hexachlorocyclopentadiene	1.99	1.97		ug/L		99	70 - 130	
Indeno[1,2,3-cd]pyrene	1.99	2.42		ug/L		121	70 - 130	
Isophorone	1.99	2.11		ug/L		106	70 - 130	
Lindane	1.99	2.14		ug/L		108	70 - 130	
Malathion	1.99	2.41		ug/L		121	70 - 130	
Methoxychlor	1.99	2.22		ug/L		111	70 - 130	
Metolachlor	1.99	2.23		ug/L		112	70 - 130	
Metribuzin	1.99	2.09		ug/L		105	70 - 130	
Molinate	1.99	2.14		ug/L		108	70 - 130	
Naphthalene	1.99	1.99		ug/L		100	70 - 130	
Parathion	1.99	2.27		ug/L		114	70 - 130	
Pendimethalin (Penoxaline)	1.99	2.05		ug/L		103	70 - 130	
Phenanthrene	1.99	2.06		ug/L		104	70 - 130	
Propachlor	1.99	2.21		ug/L		111	70 - 130	
Pyrene	1.99	2.27		ug/L		114	70 - 130	
Simazine	1.99	2.29		ug/L		115	70 - 130	
Terbacil	1.99	2.14		ug/L		108	70 - 130	
Terbuthylazine	1.99	2.36		ug/L		119	70 - 130	
Thiobencarb	1.99	2.19		ug/L		110	70 - 130	
trans-Nonachlor	1.99	2.28		ug/L		114	70 - 130	
Trifluralin	1.99	2.21		ug/L		111	70 - 130	
1-Methylnaphthalene	1.99	1.99		ug/L		100	70 - 130	
2-Methylnaphthalene	1.99	2.03		ug/L		102	70 - 130	

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
2-Nitro-m-xylene	97		70 - 130
Triphenylphosphate	108		70 - 130
Perylene-d12	99		70 - 130

Lab Sample ID: LCSD 380-16038/5-A

Matrix: Water

Analysis Batch: 16407

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 16038

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	
							Limits		RPD	Limit
2,4'-DDD	1.99	2.19		ug/L		110	70 - 130	1	20	
2,4'-DDE	1.99	2.06		ug/L		103	70 - 130	1	20	
2,4'-DDT	1.99	2.23		ug/L		112	70 - 130	1	20	
2,4-Dinitrotoluene	1.99	1.95		ug/L		98	70 - 130	2	20	
2,6-Dinitrotoluene	1.99	1.90		ug/L		95	70 - 130	2	20	
4,4'-DDD	1.99	2.28		ug/L		115	70 - 130	1	20	
4,4'-DDE	1.99	2.28		ug/L		114	70 - 130	1	20	
4,4'-DDT	1.99	2.03		ug/L		102	70 - 130	1	20	
Acenaphthene	1.99	1.96		ug/L		99	70 - 130	0	20	

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QC Sample Results

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

Job ID: 380-18990-1

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

Lab Sample ID: LCSD 380-16038/5-A

Matrix: Water

Analysis Batch: 16407

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 16038

Analyte	Spike	LCSD	LCSD	Unit	D	%Rec	%Rec	RPD	RPD
	Added	Result	Qualifier				Limits		Limit
Acenaphthylene	1.99	1.99		ug/L		100	70 - 130	1	20
Acetochlor	1.99	2.17		ug/L		109	70 - 130	0	20
Alachlor	1.99	2.17		ug/L		109	70 - 130	0	20
alpha-BHC	1.99	2.08		ug/L		104	70 - 130	3	20
alpha-Chlordane	1.99	2.25		ug/L		113	70 - 130	0	20
Anthracene	1.99	2.19		ug/L		110	70 - 130	1	20
Atrazine	1.99	2.32		ug/L		116	70 - 130	1	20
Benz(a)anthracene	1.99	2.10		ug/L		106	70 - 130	2	20
Benzo[a]pyrene	1.99	2.14		ug/L		108	70 - 130	1	20
Benzo[b]fluoranthene	1.99	2.17		ug/L		109	70 - 130	1	20
Benzo[g,h,i]perylene	1.99	2.51		ug/L		126	70 - 130	2	20
Benzo[k]fluoranthene	1.99	2.23		ug/L		112	70 - 130	5	20
beta-BHC	1.99	2.13		ug/L		107	70 - 130	1	20
Bromacil	1.99	2.06		ug/L		103	70 - 130	4	20
Butachlor	1.99	2.32		ug/L		116	70 - 130	3	20
Butylbenzylphthalate	1.99	2.30		ug/L		116	70 - 130	0	20
Caffeine	1.99	0.926		ug/L		46	45 - 137	4	20
Chlorobenzilate	1.99	2.21		ug/L		111	70 - 130	7	20
Chloroneb	1.99	2.08		ug/L		105	70 - 130	2	20
Chlorothalonil (Draconil, Bravo)	1.99	2.25		ug/L		113	70 - 130	3	20
Chlorpyrifos	1.99	2.24		ug/L		113	70 - 130	1	20
Chrysene	1.99	2.15		ug/L		108	70 - 130	0	20
delta-BHC	1.99	2.02		ug/L		102	70 - 130	1	20
Di(2-ethylhexyl)adipate	1.99	2.40		ug/L		120	70 - 130	1	20
Bis(2-ethylhexyl) phthalate	1.99	2.16		ug/L		108	70 - 130	4	20
Diazinon (Qualitative)	1.99	1.76		ug/L		88	15 - 132	0	20
Dibenz(a,h)an hracene	1.99	2.45		ug/L		123	70 - 130	3	20
Diclorvos (DDVP)	1.99	2.32		ug/L		116	70 - 130	2	20
Dieldrin	1.99	2.07		ug/L		104	70 - 130	0	20
Diethylphthalate	1.99	2.12		ug/L		107	70 - 130	2	20
Dimethoate	1.99	0.869		ug/L		44	35 - 100	3	20
Dimethylphalate	1.99	2.10		ug/L		106	70 - 130	3	20
Di-n-butyl phthalate	3.98	4.28		ug/L		108	70 - 130	0	20
Di-n-octyl phthalate	1.99	1.94		ug/L		98	70 - 130	2	20
Endosulfan I (Alpha)	1.99	2.20		ug/L		110	70 - 130	2	20
Endosulfan II (Beta)	1.99	2.27		ug/L		114	70 - 130	2	20
Endosulfan sulfate	1.99	2.17		ug/L		109	70 - 130	2	20
Endrin	1.99	2.19		ug/L		110	70 - 130	2	20
Endrin aldehyde	1.99	2.00		ug/L		101	70 - 130	3	20
EPTC	1.99	2.14		ug/L		108	70 - 130	4	20
Fluoranthene	1.99	2.29		ug/L		115	70 - 130	1	20
Fluorene	1.99	2.15		ug/L		108	70 - 130	1	20
gamma-Chlordane	1.99	2.28		ug/L		115	70 - 130	0	20
Heptachlor	1.99	2.07		ug/L		104	70 - 130	1	20
Heptachlor epoxide (isomer B)	1.99	2.20		ug/L		110	70 - 130	1	20
Hexachlorobenzene	1.99	2.07		ug/L		104	70 - 130	1	20
Hexachlorocyclopentadiene	1.99	1.98		ug/L		100	70 - 130	1	20
Indeno[1,2,3-cd]pyrene	1.99	2.43		ug/L		122	70 - 130	1	20
Isophorone	1.99	2.19		ug/L		110	70 - 130	4	20

Eurofins Eaton Monrovia

QC Sample Results

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

Job ID: 380-18990-1

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

Lab Sample ID: LCSD 380-16038/5-A

Matrix: Water

Analysis Batch: 16407

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 16038

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
Lindane	1.99	2.18		ug/L		109	70 - 130	2	20	
Malathion	1.99	2.41		ug/L		121	70 - 130	0	20	
Methoxychlor	1.99	2.21		ug/L		111	70 - 130	0	20	
Metolachlor	1.99	2.24		ug/L		112	70 - 130	0	20	
Metribuzin	1.99	1.91		ug/L		96	70 - 130	9	20	
Molinate	1.99	2.12		ug/L		107	70 - 130	1	20	
Naphthalene	1.99	2.04		ug/L		102	70 - 130	2	20	
Parathion	1.99	2.34		ug/L		118	70 - 130	3	20	
Pendimethalin (Penoxaline)	1.99	2.09		ug/L		105	70 - 130	2	20	
Phenanthrene	1.99	2.06		ug/L		104	70 - 130	0	20	
Propachlor	1.99	2.19		ug/L		110	70 - 130	1	20	
Pyrene	1.99	2.30		ug/L		115	70 - 130	1	20	
Simazine	1.99	2.30		ug/L		116	70 - 130	1	20	
Terbacil	1.99	2.22		ug/L		111	70 - 130	3	20	
Terbutylazine	1.99	2.34		ug/L		118	70 - 130	1	20	
Thiobencarb	1.99	2.18		ug/L		110	70 - 130	0	20	
trans-Nonachlor	1.99	2.30		ug/L		115	70 - 130	1	20	
Trifluralin	1.99	2.26		ug/L		113	70 - 130	2	20	
1-Methylnaphthalene	1.99	2.06		ug/L		103	70 - 130	3	20	
2-Methylnaphthalene	1.99	2.10		ug/L		106	70 - 130	4	20	

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
2-Nitro-m-xylene	98		70 - 130
Triphenylphosphate	107		70 - 130
Perylene-d12	99		70 - 130

Lab Sample ID: MRL 380-16038/2-A

Matrix: Water

Analysis Batch: 16407

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 16038

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec	
							Limits	RPD
2,4'-DDD	0.0993	0.132		ug/L		133	50 - 150	
2,4'-DDE	0.0993	0.105		ug/L		106	50 - 150	
2,4'-DDT	0.0993	0.107		ug/L		107	50 - 150	
2,4-Dinitrotoluene	0.0993	0.0781	J	ug/L		79	50 - 150	
2,6-Dinitrotoluene	0.0993	0.0829	J	ug/L		83	50 - 150	
4,4'-DDD	0.0993	0.121		ug/L		122	50 - 150	
4,4'-DDE	0.0993	0.107		ug/L		107	50 - 150	
4,4'-DDT	0.0993	0.129		ug/L		130	50 - 150	
Acenaphthene	0.0993	0.101		ug/L		101	50 - 150	
Acenaphthylene	0.0993	0.0858	J	ug/L		86	50 - 150	
Acetochlor	0.0497	0.0481	J	ug/L		97	50 - 150	
Alachlor	0.0497	0.0581		ug/L		117	50 - 150	
alpha-BHC	0.0993	0.109		ug/L		110	50 - 150	
alpha-Chlordane	0.0497	0.0580		ug/L		117	50 - 150	
Anthracene	0.0199	0.0195	J	ug/L		98	50 - 150	
Atrazine	0.0497	0.0521		ug/L		105	50 - 150	
Benz(a)anthracene	0.0497	0.0716		ug/L		144	50 - 150	

Euofins Eaton Monrovia

QC Sample Results

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

Job ID: 380-18990-1

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

Lab Sample ID: MRL 380-16038/2-A

Matrix: Water

Analysis Batch: 16407

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 16038

Analyte	Spike	MRL	MRL	Unit	D	%Rec	%Rec Limits
	Added	Result	Qualifier				
Benzo[a]pyrene	0.0199	0.0201		ug/L		101	50 - 150
Benzo[b]fluoranthene	0.0199	0.0234		ug/L		118	50 - 150
Benzo[g,h,i]perylene	0.0497	0.0492	J	ug/L		99	50 - 150
Benzo[k]fluoranthene	0.0199	0.0201		ug/L		101	50 - 150
beta-BHC	0.0993	0.108		ug/L		109	50 - 150
Bromacil	0.0993	0.137		ug/L		138	50 - 150
Butachlor	0.0497	0.0607		ug/L		122	50 - 150
Butylbenzylphthalate	0.149	0.184	J	ug/L		124	50 - 150
Caffeine	0.0497	0.0222	J ^3-	ug/L		45	50 - 150
Chlorobenzilate	0.0993	0.141		ug/L		142	50 - 150
Chloroneb	0.0993	0.125		ug/L		126	50 - 150
Chlorothalonil (Draconil, Bravo)	0.0993	0.101		ug/L		102	50 - 150
Chlorpyrifos	0.0497	0.0544		ug/L		110	50 - 150
Chrysene	0.0199	0.0233		ug/L		117	50 - 150
delta-BHC	0.0993	0.129		ug/L		130	50 - 150
Di(2-ethylhexyl)adipate	0.298	0.380	J	ug/L		128	50 - 150
Bis(2-ethylhexyl) phthalate	0.596	0.704		ug/L		118	50 - 150
Diazinon (Qualitative)	0.0993	0.0878	J	ug/L		88	15 - 132
Dibenz(a,h)an hracene	0.0497	0.0488	J	ug/L		98	50 - 150
Diclorvos (DDVP)	0.0497	0.0645		ug/L		130	50 - 150
Dieldrin	0.0993	0.118	J	ug/L		119	50 - 150
Diethylphthalate	0.149	0.187	J	ug/L		125	50 - 150
Dimethoate	0.0993	0.0478	J	ug/L		48	35 - 100
Dimethylphalate	0.298	0.313	J	ug/L		105	50 - 150
Di-n-butyl phthalate	0.298	0.376	J	ug/L		126	49 - 243
Di-n-octyl phthalate	0.0993	0.114		ug/L		115	50 - 150
Endosulfan I (Alpha)	0.0993	0.105		ug/L		106	50 - 150
Endosulfan II (Beta)	0.0993	0.108		ug/L		109	50 - 150
Endosulfan sulfate	0.0993	0.101		ug/L		102	50 - 150
Endrin	0.0993	0.142		ug/L		143	50 - 150
Endrin aldehyde	0.0993	0.136		ug/L		137	50 - 150
EPTC	0.0993	0.109		ug/L		110	50 - 150
Fluoranthene	0.0497	0.0565	J	ug/L		114	50 - 150
Fluorene	0.0497	0.0523		ug/L		105	50 - 150
gamma-Chlordane	0.0497	0.0584		ug/L		118	50 - 150
Heptachlor	0.0397	0.0639	^3+	ug/L		161	50 - 150
Heptachlor epoxide (isomer B)	0.0497	0.0521		ug/L		105	50 - 150
Hexachlorobenzene	0.0497	0.0614		ug/L		124	50 - 150
Hexachlorocyclopentadiene	0.0497	0.0487	J	ug/L		98	50 - 150
Indeno[1,2,3-cd]pyrene	0.0497	0.0505		ug/L		102	50 - 150
Isophorone	0.0993	0.112	J	ug/L		113	50 - 150
Lindane	0.0497	0.0423		ug/L		85	50 - 150
Malathion	0.0993	0.112		ug/L		113	50 - 150
Methoxychlor	0.0993	0.127		ug/L		128	50 - 150
Metolachlor	0.0497	0.0573		ug/L		115	50 - 150
Metribuzin	0.0497	0.0450	J	ug/L		91	50 - 150
Molinate	0.0993	0.110		ug/L		111	50 - 150
Naphthalene	0.0993	0.123	J	ug/L		124	50 - 150
Parathion	0.0993	0.120		ug/L		121	50 - 150

Eurofins Eaton Monrovia

QC Sample Results

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

Job ID: 380-18990-1

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

Lab Sample ID: MRL 380-16038/2-A

Matrix: Water

Analysis Batch: 16407

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 16038

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Pendimethalin (Penoxaline)	0.0993	0.121		ug/L		122	50 - 150
Phenanthrene	0.0199	0.0236	J	ug/L		119	50 - 150
Propachlor	0.0497	0.0572		ug/L		115	50 - 150
Pyrene	0.0497	0.0611		ug/L		123	50 - 150
Simazine	0.0497	0.0541		ug/L		109	50 - 150
Terbacil	0.0993	0.119		ug/L		120	50 - 150
Terbutylazine	0.0993	0.117		ug/L		117	50 - 150
Thiobencarb	0.0993	0.119	J	ug/L		120	50 - 150
trans-Nonachlor	0.0497	0.0576		ug/L		116	50 - 150
Trifluralin	0.0993	0.0915	J	ug/L		92	50 - 150
1-Methylnaphthalene	0.0993	0.113		ug/L		114	50 - 150
2-Methylnaphthalene	0.0993	0.110		ug/L		111	50 - 150

Surrogate	MRL %Recovery	MRL Qualifier	MRL Limits
2-Nitro-m-xylene	100		70 - 130
Triphenylphosphate	110		70 - 130
Perylene-d12	95		70 - 130

Lab Sample ID: 380-18995-J-2-A MS

Matrix: Water

Analysis Batch: 16407

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 16038

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
2,4'-DDD	ND		1.97	2.07		ug/L		105	70 - 130
2,4'-DDE	ND		1.97	1.98		ug/L		100	70 - 130
2,4'-DDT	ND		1.97	2.07		ug/L		105	70 - 130
2,4-Dinitrotoluene	ND		1.97	1.84		ug/L		94	70 - 130
2,6-Dinitrotoluene	ND		1.97	1.87		ug/L		95	70 - 130
4,4'-DDD	ND		1.97	2.24		ug/L		114	70 - 130
4,4'-DDE	ND		1.97	2.16		ug/L		109	70 - 130
4,4'-DDT	ND		1.97	1.89		ug/L		96	70 - 130
Acenaphthene	ND		1.97	1.92		ug/L		97	70 - 130
Acenaphthylene	ND		1.97	1.93		ug/L		98	70 - 130
Acetochlor	ND		1.97	2.02		ug/L		102	70 - 130
Alachlor	ND		1.97	2.11		ug/L		107	70 - 130
alpha-BHC	ND		1.97	2.06		ug/L		105	70 - 130
alpha-Chlordane	ND		1.97	2.15		ug/L		109	70 - 130
Anthracene	ND		1.97	1.64		ug/L		83	70 - 130
Atrazine	ND		1.97	2.20		ug/L		112	70 - 130
Benz(a)anthracene	ND		1.97	1.93		ug/L		98	70 - 130
Benzo[a]pyrene	ND		1.97	1.90		ug/L		96	70 - 130
Benzo[b]fluoranthene	ND		1.97	2.16		ug/L		110	70 - 130
Benzo[g,h,i]perylene	ND		1.97	2.42		ug/L		123	70 - 130
Benzo[k]fluoranthene	ND		1.97	2.15		ug/L		109	70 - 130
beta-BHC	ND		1.97	1.99		ug/L		101	70 - 130
Bromacil	ND		1.97	2.04		ug/L		104	70 - 130
Butachlor	ND		1.97	2.25		ug/L		114	70 - 130
Butylbenzylphthalate	ND		1.97	2.23		ug/L		113	70 - 130

Euofins Eaton Monrovia

QC Sample Results

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

Job ID: 380-18990-1

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

Lab Sample ID: 380-18995-J-2-A MS

Client Sample ID: Matrix Spike

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 16407

Prep Batch: 16038

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier	Added	Result	Qualifier				
Caffeine	ND	^3-	1.97	1.01		ug/L		51	46 - 144
Chlorobenzilate	ND		1.97	2.23		ug/L		113	70 - 130
Chloroneb	ND		1.97	2.05		ug/L		104	70 - 130
Chlorothalonil (Draconil, Bravo)	ND		1.97	2.15		ug/L		109	70 - 130
Chlorpyrifos	ND		1.97	2.11		ug/L		107	70 - 130
Chrysene	ND		1.97	2.14		ug/L		108	70 - 130
delta-BHC	ND		1.97	1.91		ug/L		97	70 - 130
Di(2-ethylhexyl)adipate	ND		1.97	2.25		ug/L		114	70 - 130
Bis(2-ethylhexyl) phthalate	ND		1.97	2.11		ug/L		107	70 - 130
Diazinon (Qualitative)	ND		1.97	1.75		ug/L		89	15 - 132
Dibenz(a,h)an hracene	ND		1.97	2.30		ug/L		116	70 - 130
Diclorvos (DDVP)	ND		1.97	2.10		ug/L		107	70 - 130
Dieldrin	ND		1.97	2.01		ug/L		102	70 - 130
Diethylphthalate	ND		1.97	1.96		ug/L		99	70 - 130
Dimethoate	ND		1.97	0.886		ug/L		45	34 - 111
Dimethylphalate	ND		1.97	2.01		ug/L		102	70 - 130
Di-n-butyl phthalate	ND		3.94	4.04		ug/L		102	70 - 130
Di-n-octyl phthalate	ND		1.97	1.84		ug/L		93	70 - 130
Endosulfan I (Alpha)	ND		1.97	2.13		ug/L		108	70 - 130
Endosulfan II (Beta)	ND		1.97	2.17		ug/L		110	70 - 130
Endosulfan sulfate	ND		1.97	2.12		ug/L		107	70 - 130
Endrin	ND		1.97	2.07		ug/L		105	70 - 130
Endrin aldehyde	ND		1.97	1.74		ug/L		88	70 - 130
EPTC	ND		1.97	2.06		ug/L		105	70 - 130
Fluoranthene	ND		1.97	2.19		ug/L		111	70 - 130
Fluorene	ND		1.97	2.12		ug/L		108	70 - 130
gamma-Chlordane	ND		1.97	2.18		ug/L		110	70 - 130
Heptachlor	ND	^3+	1.97	1.99		ug/L		101	70 - 130
Heptachlor epoxide (isomer B)	ND		1.97	2.00		ug/L		102	70 - 130
Hexachlorobenzene	ND		1.97	2.02		ug/L		103	70 - 130
Hexachlorocyclopentadiene	ND		1.97	1.91		ug/L		97	70 - 130
Indeno[1,2,3-cd]pyrene	ND		1.97	2.35		ug/L		119	70 - 130
Isophorone	ND		1.97	2.10		ug/L		106	70 - 130
Lindane	ND		1.97	2.06		ug/L		104	70 - 130
Malathion	ND		1.97	2.38		ug/L		121	70 - 130
Methoxychlor	ND		1.97	2.21		ug/L		112	70 - 130
Metolachlor	ND		1.97	2.15		ug/L		109	70 - 130
Metribuzin	ND		1.97	1.96		ug/L		99	70 - 130
Molinate	ND		1.97	2.11		ug/L		107	70 - 130
Naphthalene	ND		1.97	1.97		ug/L		100	70 - 130
Parathion	ND		1.97	2.21		ug/L		112	70 - 130
Pendimethalin (Penoxaline)	ND		1.97	1.97		ug/L		100	70 - 130
Phenanthrene	ND		1.97	2.00		ug/L		102	70 - 130
Propachlor	ND		1.97	2.02		ug/L		102	70 - 130
Pyrene	ND		1.97	2.20		ug/L		112	70 - 130
Simazine	ND		1.97	2.20		ug/L		111	70 - 130
Terbacil	ND		1.97	2.01		ug/L		102	70 - 130
Terbuthylazine	ND		1.97	2.23		ug/L		113	70 - 130
Thiobencarb	ND		1.97	2.11		ug/L		107	70 - 130

Euofins Eaton Monrovia

QC Sample Results

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

Job ID: 380-18990-1

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

Lab Sample ID: 380-18995-J-2-A MS

Client Sample ID: Matrix Spike

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 16407

Prep Batch: 16038

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec
	Result	Qualifier	Added	Result	Qualifier				
trans-Nonachlor	ND		1.97	2.15		ug/L		109	70 - 130
Trifluralin	ND		1.97	2.14		ug/L		109	70 - 130
1-Methylnaphthalene	ND		1.97	2.00		ug/L		102	70 - 130
2-Methylnaphthalene	ND		1.97	1.99		ug/L		101	70 - 130
MS MS									
Surrogate	%Recovery	Qualifier	Limits						
2-Nitro-m-xylene	98		70 - 130						
Triphenylphosphate	107		70 - 130						
Perylene-d12	93		70 - 130						

Lab Sample ID: 380-18997-J-1-A DU

Client Sample ID: Duplicate

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 16407

Prep Batch: 16038

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

QC Sample Results

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

Job ID: 380-18990-1

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

Lab Sample ID: 380-18997-J-1-A DU

Matrix: Water

Analysis Batch: 16407

Client Sample ID: Duplicate

Prep Type: Total/NA

Prep Batch: 16038

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

QC Sample Results

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

Job ID: 380-18990-1

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

Lab Sample ID: 380-18997-J-1-A DU

Matrix: Water

Analysis Batch: 16407

Client Sample ID: Duplicate

Prep Type: Total/NA

Prep Batch: 16038

<i>Surrogate</i>	<i>DU DU</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
<i>2-Nitro-m-xylene</i>	98		70 - 130
<i>Triphenylphosphate</i>	102		70 - 130
<i>Perylene-d12</i>	85		70 - 130

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QC Association Summary

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

Job ID: 380-18990-1

GC/MS Semi VOA

Prep Batch: 16038

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-18990-1	HALAWA WELLS PUMP 1	Total/NA	Drinking Water	525.2	
MB 380-16038/1-A	Method Blank	Total/NA	Water	525.2	
LCS 380-16038/4-A	Lab Control Sample	Total/NA	Water	525.2	
LCSD 380-16038/5-A	Lab Control Sample Dup	Total/NA	Water	525.2	
MRL 380-16038/2-A	Lab Control Sample	Total/NA	Water	525.2	
380-18995-J-2-A MS	Matrix Spike	Total/NA	Water	525.2	
380-18997-J-1-A DU	Duplicate	Total/NA	Water	525.2	

Analysis Batch: 16407

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-18990-1	HALAWA WELLS PUMP 1	Total/NA	Drinking Water	525.2	16038
MB 380-16038/1-A	Method Blank	Total/NA	Water	525.2	16038
LCS 380-16038/4-A	Lab Control Sample	Total/NA	Water	525.2	16038
LCSD 380-16038/5-A	Lab Control Sample Dup	Total/NA	Water	525.2	16038
MRL 380-16038/2-A	Lab Control Sample	Total/NA	Water	525.2	16038
380-18995-J-2-A MS	Matrix Spike	Total/NA	Water	525.2	16038
380-18997-J-1-A DU	Duplicate	Total/NA	Water	525.2	16038



Lab Chronicle

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

Job ID: 380-18990-1

Client Sample ID: HALAWA WELLS PUMP 1

Lab Sample ID: 380-18990-1

Date Collected: 08/29/22 09:30

Matrix: Drinking Water

Date Received: 08/30/22 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	525.2			16038	OTM3	EA MON	09/02/22 09:06
Total/NA	Analysis	525.2		1	16407	Q8LA	EA MON	09/07/22 12:27

Laboratory References:

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

EA MON = Eurofins Eaton Monrovia, 750 Royal Oaks Drive, Suite 100, Monrovia, CA 91016, TEL (626)386-1100



Accreditation/Certification Summary

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

Job ID: 380-18990-1

Laboratory: Eurofins Eaton Monrovia

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

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

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

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

Accreditation/Certification Summary

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

Job ID: 380-18990-1

Laboratory: Eurofins Eaton Monrovia (Continued)

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

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

Analysis Method	Prep Method	Matrix	Analyte
525.2	525.2	Drinking Water	gamma-Chlordane
525.2	525.2	Drinking Water	Indeno[1,2,3-cd]pyrene
525.2	525.2	Drinking Water	Isophorone
525.2	525.2	Drinking Water	Malathion
525.2	525.2	Drinking Water	Molinate
525.2	525.2	Drinking Water	Naphthalene
525.2	525.2	Drinking Water	Parathion
525.2	525.2	Drinking Water	Pendimethalin (Penoxaline)
525.2	525.2	Drinking Water	Phenanthrene
525.2	525.2	Drinking Water	Pyrene
525.2	525.2	Drinking Water	Terbacil
525.2	525.2	Drinking Water	Terbutylazine
525.2	525.2	Drinking Water	Thiobencarb
525.2	525.2	Drinking Water	Total Permethrin (mixed isomers)
525.2	525.2	Drinking Water	trans-Nonachlor
525.2	525.2	Drinking Water	Trifluralin



Method Summary

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

Job ID: 380-18990-1

Method	Method Description	Protocol	Laboratory
525.2	Semivolatile Organic Compounds (GC/MS)	EPA	EA MON
625	EPA 625 Base/Neutral and Acid Organics i	EPA	
8015	8015 - TPH DRO/ORO	EPA	
8015B	SW846 8015B Gasoline Range Organics	SW846	
525.2	Extraction of Semivolatile Compounds	EPA	EA MON

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

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

EA MON = Eurofins Eaton Monrovia, 750 Royal Oaks Drive, Suite 100, Monrovia, CA 91016, TEL (626)386-1100



Sample Summary

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

Job ID: 380-18990-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
380-18990-1	HALAWA WELLS PUMP 1	Drinking Water	08/29/22 09:30	08/30/22 10:00
380-18990-2	TB: HALAWA WELLS PUMP 1	Water	08/29/22 09:30	08/30/22 10:00

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Date: 09-20-2022
EMAX Batch No.: 22H372

Attn: Jackie Contreras

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

Subject: Laboratory Report
Project: 380-18990

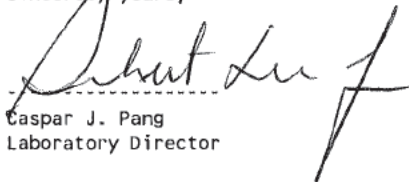
Enclosed is the Laboratory report for samples received on 08/31/22.
The data reported relate only to samples listed below :

Sample ID	Control #	Col Date	Matrix	Analysis
380-18990-1	H372-01	08/29/22	WATER	TPH GASOLINE TPH DIESEL & MOTOR OIL
380-18990-2	H372-02	08/29/22	WATER	TPH GASOLINE
380-18990-1MS	H372-01M	08/29/22	WATER	TPH GASOLINE
380-18990-1MSD	H372-01S	08/29/22	WATER	TPH GASOLINE

The results are summarized on the following pages.

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

Sincerely yours,



Caspar J. Pang
Laboratory Director

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

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

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

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

22H372

Chain of Custody Record



Client Information (Sub Contract Lab)

Client Contact: Frank, Debbie L
 Shipping/Receiving: Debbie.Frank@eurofins.com
 Company: EMAX Laboratories Inc
 Address: 3051 Fujita Street, Torrance, CA, 90505
 Phone: [blank]
 Email: [blank]
 Project Name: RED-HILL
 Site: Honolulu BWS Sites

Sampler: Frank, Debbie L
 Lab P/N: [blank]
 Carrier Tracking No(s): [blank]
 State of Origin: Hawaii
 Job #: 380-19990-1
 Page: Page 1 of 1
 Preservation Codes: A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - PH 4.5, Y - Tizma, Z - other (specify)

Date Requested: 9/7/2022
 TAT Requested (days): [blank]
 Analysis Requested: [blank]

Sample ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	MATRIX (W=water, S=solid, O=oil, BT=bitum, A=air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Substrate	Total Number of Containers	Special Instructions/Note
HALAWA WELLS P1 (331-023-W.L065) (380-18990-1)	8/29/22	09:30	Hawaiian	Water	X	X	SUB (8015 Gas (Purgeable) LL (EAL))/ 8015 Gas (Purgeable) LL (EAL)	See Attached Instructions	
TB: HALAWA WELLS P1 (331-023-W.L065) (380-18990-2)	8/29/22	09:30	Hawaiian	Water	X	X	SUB (8015 Diesel LL (EAL) and Motor Oil)/ 8015 Diesel LL (EAL) and Motor Oil	See Attached Instructions	

Possible Hazard Identification
 Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2
 Empty Kit Relinquished by: [blank] Date: [blank]
 Relinquished by: [Signature] Date/Time: 8/31/22 11:11 Company: [blank]
 Relinquished by: [Signature] Date/Time: 9/2/22 16:35 Company: [blank]
 Relinquished by: [Signature] Date/Time: [blank] Company: [blank]
 Custody Seals Intact: Custody Seal No.: [blank]
 REPORT ID: 22H372
 Cooler Temperature(s) °C and Other Remarks: Temp. 0.1°C ME Page 2 of 23
 1.8 5/3/22



Type of Delivery <input type="checkbox"/> Fedex <input type="checkbox"/> UPS <input type="checkbox"/> GSO <input type="checkbox"/> Others <input checked="" type="checkbox"/> EMAX Courier <input checked="" type="checkbox"/> Client Delivery	Airbill / Tracking Number	ECN <u>22H372</u> Recipient <u>ALAN RIVUS</u> Date <u>08/31/22</u> Time <u>16:35</u>
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------	--------------------------------------------------------------------------------------------

COC INSPECTION

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

PACKAGING INSPECTION

Container	<input checked="" type="checkbox"/> Cooler	<input type="checkbox"/> Box	<input type="checkbox"/> Other
Condition	<input type="checkbox"/> Custody Seal	<input type="checkbox"/> Intact	<input type="checkbox"/> Damaged
Packaging	<input checked="" type="checkbox"/> Bubble Pack	<input type="checkbox"/> Styrofoam	<input type="checkbox"/> Popcorn
Temperatures (Cool, ≤6 °C but not frozen)	<input checked="" type="checkbox"/> Cooler 1 <u>1.8</u> °C	<input checked="" type="checkbox"/> Cooler 2 <u>2.4</u> °C	<input type="checkbox"/> Cooler 3 _____ °C
	<input type="checkbox"/> Cooler 6 _____ °C	<input type="checkbox"/> Cooler 7 _____ °C	<input type="checkbox"/> Cooler 8 _____ °C
Thermometer:	A - S/N _____	B - S/N <u>210760237</u>	C - S/N _____
Comments:	<input type="checkbox"/> Temperature is out of range. PM was informed IMMEDIATELY.		
Note:			

DISCREPANCIES

LabSampleID	LabSampleContainerID	Code	ClientSample Label ID / Information	Corrective Action
1	1-C	D10		
2	7-8	D22	2nd date reads 8/16/22	

cA/31/22 EA 9/1/22

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

NOTES/OBSERVATIONS:

SAMPLE MATRIX IS DRINKING WATER? YES NO

LEGEND:

- | | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Code Description-Sample Management</p> <ul style="list-style-type: none"> 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 | <p>Code Description-Sample Management</p> <ul style="list-style-type: none"> 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 D23 _____ D24 _____ | <p><input type="checkbox"/> Continue to next page.</p> <p>Code Description-Sample Management</p> <ul style="list-style-type: none"> R1 Proceed as indicated in COC <input type="checkbox"/> 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 _____ |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

REVIEWS:

Sample Labeling Maria Rivera
 Date 08/31/22

SRF [Signature]
 Date 8/31/22

PM EA for RB
 Date 9/1/22

REPORTING CONVENTIONS

DATA QUALIFIERS:

Lab Qualifier	AFCEE Qualifier	Description
J	F	Indicates that the analyte is positively identified and the result is less than RL but greater than MDL.
N		Indicates presumptive evidence of a compound.
B	B	Indicates that the analyte is found in the associated method blank as well as in the sample at above QC level.
E	J	Indicates that the result is above the maximum calibration range or estimated value.
*	*	Out of QC limit.

Note: The above qualifiers are used to flag the results unless the project requires a different set of qualification criteria.

ACRONYMS AND ABBREVIATIONS:

CRDL	Contract Required Detection Limit
RL	Reporting Limit
MRL	Method Reporting Limit
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
DO	Diluted out

DATES

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.

LABORATORY REPORT FOR

EUROFINS EATON ANALYTICAL

380-18990

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

SDG#: 22H372



CASE NARRATIVE

Client : EUROFINS EATON ANALYTICAL

Project: 380-18990

SDG : 22H372

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

A total of two(2) water samples were received on 08/31/22 to be analyzed for Total Petroleum Hydrocarbons by Purge and Trap in accordance with Method 5030B/8015B and project specific requirements.

Holding Time

Samples were analyzed within the prescribed holding time.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source (ICV). Continuing calibration (CCV) verifications were carried out on a frequency specified by the project. All calibration requirements were within acceptance criteria. Refer to calibration summary forms of ICAL, ICV and CCV for details. MRL was analyzed as required by the project. Refer to MRL summary form for details.

Method Blank

Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. VG39I01B - 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. VG39I01L/VG39I01C 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 H372-01M/H372-01S. 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: 08/29/22 09:30
Project     : 380-18990                 Date Received: 08/31/22
Batch No.   : 22H372                   Date Extracted: 09/01/22 15:18
Sample ID   : 380-18990-1              Date Analyzed: 09/01/22 15:18
Lab Samp ID: H372-01                   Dilution Factor: 1
Lab File ID: E101008A                  Matrix: WATER
Ext Btch ID: 22VG39101                 % Moisture: NA
Calib. Ref.: E101003A                  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	0.0352	0.0400	88	60-140

Notes:

Parameter H-C Range
Gasoline C6-C10

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

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

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

```

=====
Client      : EUROFINS EATON ANALYTICAL   Date Collected: 08/29/22 09:30
Project     : 380-18990                   Date Received: 08/31/22
Batch No.   : 22H372                       Date Extracted: 09/01/22 17:11
Sample ID   : 380-18990-2                 Date Analyzed: 09/01/22 17:11
Lab Samp ID: H372-02                       Dilution Factor: 1
Lab File ID: E101011A                       Matrix: WATER
Ext Btch ID: 22VG39101                     % Moisture: NA
Calib. Ref.: E101003A                       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	0.0357	0.0400	89	60-140

Notes:

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

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

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QC SUMMARIES

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

```

=====
Client      : EUROFINS EATON ANALYTICAL   Date Collected: 09/01/22 13:19
Project     : 380-18990                   Date Received: 09/01/22
Batch No.   : 22H372                       Date Extracted: 09/01/22 13:19
Sample ID   : MBLK1W                       Date Analyzed: 09/01/22 13:19
Lab Samp ID: VG39I01B                     Dilution Factor: 1
Lab File ID: EI01005A                     Matrix: WATER
Ext Btch ID: 22VG39I01                   % Moisture: NA
Calib. Ref.: EI01003A                     Instrument ID: 39
=====

```

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)	
GASOLINE	ND	0.020	0.010	
SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromofluorobenzene	0.0342	0.0400	85	60-140

Notes:

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

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

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL
PROJECT : 380-18990
BATCH NO. : 22H372
METHOD : 5030B/8015B

```

=====
MATRIX      : WATER                               % MOISTURE:NA
DILUTION FACTOR: 1                               1
SAMPLE ID   : MBLK1W                             LCS1W         LCD1W
LAB SAMPLE ID : VG39101B                         VG39101L     VG39101C
LAB FILE ID  : E101005A                         E101006A     E101007A
DATE PREPARED : 09/01/22 13:19                 09/01/22 13:57 09/01/22 14:34
DATE ANALYZED : 09/01/22 13:19                 09/01/22 13:57 09/01/22 14:34
PREP BATCH   : 22VG39101                       22VG39101    22VG39101
CALIBRATION REF: E101003A                       E101003A     E101003A
  
```

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	0.498	100	0.500	0.509	102	2	60-130	30

SURROGATE PARAMETER	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	QCLimit (%)
Bromofluorobenzene	0.0400	0.0446	112	0.0400	0.0456	114	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 : 380-18990
BATCH NO. : 22H372
METHOD : 5030B/8015B

```

=====
MATRIX      : WATER                               % MOISTURE:NA
DILUTION FACTOR: 1                               1
SAMPLE ID   : 380-18990-1                       380-18990-1MS
LAB SAMPLE ID : H372-01                         H372-01M
LAB FILE ID  : EI01008A                        EI01009A
DATE PREPARED : 09/01/22 15:18                 09/01/22 15:55
DATE ANALYZED : 09/01/22 15:18                 09/01/22 16:32
PREP BATCH   : 22VG39101                       22VG39101
CALIBRATION REF: EI01003A                      EI01003A
    
```

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	0.514	103	0.500	0.501	100	3	50-130	30

SURROGATE PARAMETER	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	QCLimit (%)
Bromofluorobenzene	0.0400	0.0478	120	0.0400	0.0473	118	60-140

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

LABORATORY REPORT FOR

EUROFINS EATON ANALYTICAL

380-18990

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

SDG#: 22H372



CASE NARRATIVE

Client : EUROFINS EATON ANALYTICAL

Project: 380-18990

SDG : 22H372

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

One(1) water sample was received on 08/31/22 to be analyzed for Total Petroleum Hydrocarbons by Extraction in accordance with Method 3520C/8015B and project specific requirements.

Holding Time

The sample was analyzed within the prescribed holding time.

Calibration

Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using a secondary source (ICV). Continuing calibration (CCV) verifications were carried out on a frequency specified by the project. All calibration requirements were within acceptance criteria. Refer to calibration summary forms of ICAL, ICV and CCV for details. MRL was analyzed as required by the project. Refer to MRL summary form for details.

Method Blank

Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. DSI004WB - 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 DSI004WL. 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 22H331-01M/22H331-01S. 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     : 380-18990
SDG NO.    : 22H372
Instrument ID : D5
=====
  
```

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Prep. Data FN	Batch	Notes
					WATER				
MBLK1W	DS1004WB	1	NA	09/02/2217:20	09/01/2217:30	L102010A	L102003A	22DS1004W	Method Blank
LCS1W	DS1004WL	1	NA	09/02/2217:39	09/01/2217:30	L102011A	L102003A	22DS1004W	Lab Control Sample (LCS)
380-18990-1	H372-01	1	NA	09/02/2223:52	09/01/2217:30	L102031A	L102024A	22DS1004W	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: 08/29/22 09:30
Project     : 380-18990                   Date Received: 08/31/22
Batch No.   : 22H372                       Date Extracted: 09/01/22 17:30
Sample ID   : 380-18990-1                 Date Analyzed: 09/02/22 23:52
Lab Samp ID : 22H372-01                   Dilution Factor: 1
Lab File ID : LI02031A                     Matrix: WATER
Ext Btch ID : 22DS1004W                   % Moisture: NA
Calib. Ref.: LI02024A                     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	0.354	0.500	71	60-130	
Hexacosane	0.114	0.125	91	60-130	

Notes:

```

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

```

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

```

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

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QC SUMMARIES

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : EUROFINS EATON ANALYTICAL   Date Collected: 09/01/22 17:30
Project     : 380-18990                   Date Received: 09/01/22
Batch No.   : 22H372                       Date Extracted: 09/01/22 17:30
Sample ID   : MBLK1W                       Date Analyzed: 09/02/22 17:20
Lab Samp ID: DSI004WB                      Dilution Factor: 1
Lab File ID: LI02010A                      Matrix: WATER
Ext Btch ID: 22DSI004W                    % Moisture: NA
Calib. Ref.: LI02003A                     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	0.490	0.500	98	60-130
Hexacosane	0.126	0.125	101	60-130

Notes:

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

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

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

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL
PROJECT : 380-18990
BATCH NO. : 22H372
METHOD : 3520C/8015B

=====

MATRIX	: WATER	% MOISTURE:NA
DILUTION FACTOR:	1	1
SAMPLE ID	: MBLK1W	LCS1W
LAB SAMPLE ID	: DSI004WB	DSI004WL
LAB FILE ID	: LI02010A	LI02011A
DATE PREPARED	: 09/01/22 17:30	09/01/22 17:30
DATE ANALYZED	: 09/02/22 17:20	09/02/22 17:39
PREP BATCH	: 22DSI004W	22DSI004W
CALIBRATION REF:	LI02003A	LI02003A

ACCESSION:

PARAMETERS	MBResult (mg/L)	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	QCLimit (%)
-----	-----	-----	-----	-----	-----
Diesel	ND	2.50	2.46	98	50-130

SURROGATE PARAMETERS	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	QCLimit (%)
-----	-----	-----	-----	-----
Bromobenzene	0.500	0.538	108	60-130
Hexacosane	0.125	0.131	105	60-130

=====

MB: Method Blank sample LCS: Lab Control Sample

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL
PROJECT : 380-18576
BATCH NO. : 22H331
METHOD : 3520C/8015B

```

=====
MATRIX      : WATER                                     % MOISTURE:NA
DILUTION FACTOR: 1                                     1
SAMPLE ID   : 380-18576-1                             380-18576-1MS
LAB SAMPLE ID : 22H331-01                             22H331-01S
LAB FILE ID  : L102016A                               L102017A
DATE PREPARED : 09/01/22 17:30                       09/01/22 17:30
DATE ANALYZED : 09/02/22 19:13                       09/02/22 19:50
PREP BATCH   : 22DSI004W                             22DSI004W
CALIBRATION REF: L102003A                             L102003A
    
```

ACCESSION:

PARAMETERS	PSResult (mg/L)	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Diesel	ND	2.78	3.23	116	2.80	2.97	106	8	50-130	30

SURROGATE PARAMETERS	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	QCLimit (%)
Bromobenzene	0.555	0.497	90	0.560	0.485	87	60-130
Hexacosane	0.139	0.147	106	0.140	0.141	101	60-130

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

September 08, 2022

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

Project Name: RED-HILL Project # 38001111 Job # 380-18990-1
Physis Project ID: 1407003-284

Dear Debbie,


Enclosed are the analytical results for the sample submitted to PHYSIS Environmental Laboratories, Inc. (PHYSIS) on 8/31/2022. A total of 1 sample was received for analysis in accordance with the attached chain of custody (COC). Per the COC, the sample was analyzed for:

Organics
Polynuclear Aromatic Hydrocarbons by EPA 625.1
Disalicylidenepropanediamine by EPA 625.1
Dibenzo [a,l] Pyrene w/ PAHs by EPA 625.1

Analytical results in this report apply only to samples submitted to PHYSIS in accordance with the COC and are intended to be considered in their entirety.

Please feel free to contact me at any time with any questions. PHYSIS appreciates the opportunity to provide you with our analytical and support services.

Regards,


Misty Mercier
714 602-5320
Extension 202
mistymercier@physislabs.com

PROJECT SAMPLE LIST

Eurofins Eaton Analytical

PHYSIS Project ID: 1407003-284

RED-HILL Project # 38001111 Job # 380-18990-1

Total Samples: 1

PHYSIS ID	Sample ID	Description	Date	Time	Matrix	Sample Type
99776	HALAWA WELLS P1	331-023-WL065 (380-18990-1)	8/29/2022	9:30	Samplewater	Not Specified

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ABBREVIATIONS and ACRONYMS

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

QUALITY ASSURANCE SUMMARY

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

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

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

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

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

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

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

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

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

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

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

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

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

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

PHYSIS QUALIFIER CODES

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

CASE NARRATIVE

QUALIFIER NOTES

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

ND

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

BIANALYTICALS

REPORT

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Base/Neutral Extractable Compounds

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Sample ID: 99776-R1 HALAWA WELLS P1 331-023-WL065 Matrix: Samplewater Sampled: 29-Aug-22 9:30 Received: 31-Aug-22											
Disalicylidenepropanediamine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-38104	01-Sep-22	06-Sep-22



Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Sample ID: 99776-R1 HALAWA WELLS P1 331-023-WL065 Matrix: Samplewater							Sampled: 29-Aug-22 9:30		Received: 31-Aug-22		
(d10-Acenaphthene)	EPA 625.1	% Recovery	78	1			Total		O-38104	01-Sep-22	06-Sep-22
(d10-Phenanthrene)	EPA 625.1	% Recovery	71	1			Total		O-38104	01-Sep-22	06-Sep-22
(d12-Chrysene)	EPA 625.1	% Recovery	65	1			Total		O-38104	01-Sep-22	06-Sep-22
(d12-Perylene)	EPA 625.1	% Recovery	58	1			Total		O-38104	01-Sep-22	06-Sep-22
(d8-Naphthalene)	EPA 625.1	% Recovery	100	1			Total		O-38104	01-Sep-22	06-Sep-22
1-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38104	01-Sep-22	06-Sep-22
1-Methylphenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38104	01-Sep-22	06-Sep-22
2,3,5-Trimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38104	01-Sep-22	06-Sep-22
2,6-Dimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38104	01-Sep-22	06-Sep-22
2-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38104	01-Sep-22	06-Sep-22
Acenaphthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38104	01-Sep-22	06-Sep-22
Acenaphthylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38104	01-Sep-22	06-Sep-22
Anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38104	01-Sep-22	06-Sep-22
Benz[a]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38104	01-Sep-22	06-Sep-22
Benzo[a]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38104	01-Sep-22	06-Sep-22
Benzo[b]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38104	01-Sep-22	06-Sep-22
Benzo[e]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38104	01-Sep-22	06-Sep-22
Benzo[g,h,i]perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38104	01-Sep-22	06-Sep-22
Benzo[k]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38104	01-Sep-22	06-Sep-22
Biphenyl	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38104	01-Sep-22	06-Sep-22
Chrysene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38104	01-Sep-22	06-Sep-22
D benz[a,h]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38104	01-Sep-22	06-Sep-22
D benzo[a,l]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38104	01-Sep-22	06-Sep-22
D benzothiophene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38104	01-Sep-22	06-Sep-22

Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38104	01-Sep-22	06-Sep-22
Fluorene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38104	01-Sep-22	06-Sep-22
Indeno[1,2,3-cd]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38104	01-Sep-22	06-Sep-22
Naphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38104	01-Sep-22	06-Sep-22
Perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38104	01-Sep-22	06-Sep-22
Phenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38104	01-Sep-22	06-Sep-22
Pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-38104	01-Sep-22	06-Sep-22



QUALITY CONTROL REPORT

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Base/Neutral Extractable Compounds

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY		PRECISION		QA CODEc
							LEVEL	RESULT	%	LIMITS	%	LIMITS	
Sample ID: 99775-B1		QAQC Procedural Blank			Matrix: BlankMatrix		Sampled:		Received:				
		Method: EPA 625.1			Batch ID: O-38104		Prepared: 29-Aug-22		Analyzed: 03-Sep-22				
Disalicylideneprapanediamin	Total	ND	1	0.05	0.1	µg/L							
Sample ID: 99775-BS1		QAQC Procedural Blank			Matrix: BlankMatrix		Sampled:		Received:				
		Method: EPA 625.1			Batch ID: O-38104		Prepared: 29-Aug-22		Analyzed: 03-Sep-22				
Disalicylideneprapanediamin	Total	30.5	1	0.05	0.1	µg/L	50	0	61	50 - 150%	PASS		
Sample ID: 99775-BS2		QAQC Procedural Blank			Matrix: BlankMatrix		Sampled:		Received:				
		Method: EPA 625.1			Batch ID: O-38104		Prepared: 29-Aug-22		Analyzed: 03-Sep-22				
Disalicylideneprapanediamin	Total	31.9	1	0.05	0.1	µg/L	50	0	64	50 - 150%	PASS	5	30 PASS

Polynuclear Aromatic Hydrocarbons

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY	PRECISION	QA CODE
							LEVEL	RESULT	% LIMITS	% LIMITS	
Sample ID: 99775-B1		QAQC Procedural Blank			Matrix: BlankMatrix		Sampled:		Received:		
	Method: EPA 625.1					Batch ID: O-38104	Prepared: 29-Aug-22	Analyzed: 03-Sep-22			
(d10-Acenaphthene)	Total	84	1			% Recovery	100	84	65 - 113%	PASS	
(d10-Phenanthrene)	Total	87	1			% Recovery	100	87	80 - 111%	PASS	
(d12-Chrysene)	Total	84	1			% Recovery	100	84	60 - 139%	PASS	
(d12-Perylene)	Total	83	1			% Recovery	100	83	36 - 161%	PASS	
(d8-Naphthalene)	Total	78	1			% Recovery	100	78	44 - 119%	PASS	
1-Methylnaphthalene	Total	ND	1	0.001	0.005	µg/L					
1-Methylphenanthrene	Total	ND	1	0.001	0.005	µg/L					
2,3,5-Trimethylnaphthalene	Total	ND	1	0.001	0.005	µg/L					
2,6-Dimethylnaphthalene	Total	ND	1	0.001	0.005	µg/L					
2-Methylnaphthalene	Total	ND	1	0.001	0.005	µg/L					
Acenaphthene	Total	ND	1	0.001	0.005	µg/L					
Acenaphthylene	Total	ND	1	0.001	0.005	µg/L					
Anthracene	Total	ND	1	0.001	0.005	µg/L					
Benz[a]anthracene	Total	ND	1	0.001	0.005	µg/L					
Benzo[a]pyrene	Total	ND	1	0.001	0.005	µg/L					
Benzo[b]fluoranthene	Total	ND	1	0.001	0.005	µg/L					
Benzo[e]pyrene	Total	ND	1	0.001	0.005	µg/L					
Benzo[g,h,i]perylene	Total	ND	1	0.001	0.005	µg/L					
Benzo[k]fluoranthene	Total	ND	1	0.001	0.005	µg/L					
Biphenyl	Total	ND	1	0.001	0.005	µg/L					
Chrysene	Total	ND	1	0.001	0.005	µg/L					
Dibenz[a,h]anthracene	Total	ND	1	0.001	0.005	µg/L					
Dibenzo[a,l]pyrene	Total	ND	1	0.001	0.005	µg/L					

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	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 CODE
							LEVEL	RESULT	%	LIMITS	%	LIMITS
Sample ID: 99775-BS1		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:		Received:		
Method: EPA 625.1		Batch ID: O-38104			Prepared: 29-Aug-22		Analyzed: 03-Sep-22					
(d10-Acenaphthene)	Total	83	1			% Recovery	100	0	83	65 - 113%	PASS	
(d10-Phenanthrene)	Total	86	1			% Recovery	100	0	86	80 - 111%	PASS	
(d12-Chrysene)	Total	84	1			% Recovery	100	0	84	60 - 139%	PASS	
(d12-Perylene)	Total	83	1			% Recovery	100	0	83	36 - 161%	PASS	
(d8-Naphthalene)	Total	74	1			% Recovery	100	0	74	44 - 119%	PASS	
1-Methylnaphthalene	Total	0.397	1	0.001	0.005	µg/L	0.5	0	79	49 - 117%	PASS	
1-Methylphenanthrene	Total	0.492	1	0.001	0.005	µg/L	0.5	0	98	66 - 127%	PASS	
2,3,5-Trimethylnaphthalene	Total	0.405	1	0.001	0.005	µg/L	0.5	0	81	57 - 120%	PASS	
2,6-Dimethylnaphthalene	Total	0.389	1	0.001	0.005	µg/L	0.5	0	78	54 - 117%	PASS	
2-Methylnaphthalene	Total	0.402	1	0.001	0.005	µg/L	0.5	0	80	47 - 130%	PASS	
Acenaphthene	Total	0.403	1	0.001	0.005	µg/L	0.5	0	81	53 - 131%	PASS	
Acenaphthylene	Total	0.389	1	0.001	0.005	µg/L	0.5	0	78	43 - 140%	PASS	
Anthracene	Total	0.412	1	0.001	0.005	µg/L	0.5	0	82	58 - 135%	PASS	
Benz[a]anthracene	Total	0.436	1	0.001	0.005	µg/L	0.5	0	87	55 - 145%	PASS	
Benzo[a]pyrene	Total	0.402	1	0.001	0.005	µg/L	0.5	0	80	51 - 143%	PASS	
Benzo[b]fluoranthene	Total	0.515	1	0.001	0.005	µg/L	0.5	0	103	46 - 165%	PASS	
Benzo[e]pyrene	Total	0.462	1	0.001	0.005	µg/L	0.5	0	92	42 - 152%	PASS	
Benzo[g,h,i]perylene	Total	0.424	1	0.001	0.005	µg/L	0.5	0	85	63 - 133%	PASS	
Benzo[k]fluoranthene	Total	0.462	1	0.001	0.005	µg/L	0.5	0	92	56 - 145%	PASS	
Biphenyl	Total	0.392	1	0.001	0.005	µg/L	0.5	0	78	56 - 119%	PASS	
Chrysene	Total	0.402	1	0.001	0.005	µg/L	0.5	0	80	56 - 141%	PASS	
Dibenz[a,h]anthracene	Total	0.522	1	0.001	0.005	µg/L	0.5	0	104	55 - 150%	PASS	
Dibenzo[a,l]pyrene	Total	0.285	1	0.001	0.005	µg/L	0.5	0	57	50 - 150%	PASS	

Polynuclear Aromatic Hydrocarbons

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY		PRECISION		QA CODE _c
									%	LIMITS	%	LIMITS	
Dibenzothiophene	Total	0.412	1	0.001	0.005	µg/L	0.5	0	82	75 - 113%	PASS		
Fluoranthene	Total	0.501	1	0.001	0.005	µg/L	0.5	0	100	60 - 146%	PASS		
Fluorene	Total	0.433	1	0.001	0.005	µg/L	0.5	0	87	58 - 131%	PASS		
Indeno[1,2,3-cd]pyrene	Total	0.546	1	0.001	0.005	µg/L	0.5	0	109	50 - 151%	PASS		
Naphthalene	Total	0.364	1	0.001	0.005	µg/L	0.5	0	73	41 - 126%	PASS		
Perylene	Total	0.444	1	0.001	0.005	µg/L	0.5	0	89	48 - 141%	PASS		
Phenanthrene	Total	0.408	1	0.001	0.005	µg/L	0.5	0	82	67 - 127%	PASS		
Pyrene	Total	0.506	1	0.001	0.005	µg/L	0.5	0	101	54 - 156%	PASS		

Polynuclear Aromatic Hydrocarbons

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY		PRECISION		QA CODEc		
							LEVEL	RESULT	%	LIMITS	%	LIMITS			
Sample ID: 99775-BS2		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:			Received:				
		Method: EPA 625.1			Batch ID: O-38104			Prepared: 29-Aug-22			Analyzed: 03-Sep-22				
(d10-Acenaphthene)	Total	86	1				% Recovery	100	0	86	65 - 113%	PASS	4	30	PASS
(d10-Phenanthrene)	Total	88	1				% Recovery	100	0	88	80 - 111%	PASS	2	30	PASS
(d12-Chrysene)	Total	82	1				% Recovery	100	0	82	60 - 139%	PASS	2	30	PASS
(d12-Perylene)	Total	89	1				% Recovery	100	0	89	36 - 161%	PASS	7	30	PASS
(d8-Naphthalene)	Total	81	1				% Recovery	100	0	81	44 - 119%	PASS	9	30	PASS
1-Methylnaphthalene	Total	0.408	1	0.001	0.005	µg/L		0.5	0	82	49 - 117%	PASS	4	30	PASS
1-Methylphenanthrene	Total	0.463	1	0.001	0.005	µg/L		0.5	0	93	66 - 127%	PASS	5	30	PASS
2,3,5-Trimethylnaphthalene	Total	0.436	1	0.001	0.005	µg/L		0.5	0	87	57 - 120%	PASS	7	30	PASS
2,6-Dimethylnaphthalene	Total	0.413	1	0.001	0.005	µg/L		0.5	0	83	54 - 117%	PASS	6	30	PASS
2-Methylnaphthalene	Total	0.417	1	0.001	0.005	µg/L		0.5	0	83	47 - 130%	PASS	4	30	PASS
Acenaphthene	Total	0.418	1	0.001	0.005	µg/L		0.5	0	84	53 - 131%	PASS	4	30	PASS
Acenaphthylene	Total	0.421	1	0.001	0.005	µg/L		0.5	0	84	43 - 140%	PASS	7	30	PASS
Anthracene	Total	0.426	1	0.001	0.005	µg/L		0.5	0	85	58 - 135%	PASS	4	30	PASS
Benz[a]anthracene	Total	0.42	1	0.001	0.005	µg/L		0.5	0	84	55 - 145%	PASS	4	30	PASS
Benzo[a]pyrene	Total	0.465	1	0.001	0.005	µg/L		0.5	0	93	51 - 143%	PASS	15	30	PASS
Benzo[b]fluoranthene	Total	0.517	1	0.001	0.005	µg/L		0.5	0	103	46 - 165%	PASS	0	30	PASS
Benzo[e]pyrene	Total	0.481	1	0.001	0.005	µg/L		0.5	0	96	42 - 152%	PASS	4	30	PASS
Benzo[g,h,i]perylene	Total	0.431	1	0.001	0.005	µg/L		0.5	0	86	63 - 133%	PASS	1	30	PASS
Benzo[k]fluoranthene	Total	0.465	1	0.001	0.005	µg/L		0.5	0	93	56 - 145%	PASS	1	30	PASS
Biphenyl	Total	0.413	1	0.001	0.005	µg/L		0.5	0	83	56 - 119%	PASS	6	30	PASS
Chrysene	Total	0.398	1	0.001	0.005	µg/L		0.5	0	80	56 - 141%	PASS	0	30	PASS
Dibenz[a,h]anthracene	Total	0.525	1	0.001	0.005	µg/L		0.5	0	105	55 - 150%	PASS	1	30	PASS
Dibenzo[a,l]pyrene	Total	0.335	1	0.001	0.005	µg/L		0.5	0	67	50 - 150%	PASS	16	30	PASS

Polynuclear Aromatic Hydrocarbons

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY		PRECISION		QA CODE _c	
							LEVEL	RESULT	%	LIMITS	%	LIMITS		
Dibenzothiophene	Total	0.429	1	0.001	0.005	µg/L	0.5	0	86	75 - 113%	PASS	5	30	PASS
Fluoranthene	Total	0.475	1	0.001	0.005	µg/L	0.5	0	95	60 - 146%	PASS	5	30	PASS
Fluorene	Total	0.468	1	0.001	0.005	µg/L	0.5	0	94	58 - 131%	PASS	8	30	PASS
Indeno[1,2,3-cd]pyrene	Total	0.551	1	0.001	0.005	µg/L	0.5	0	110	50 - 151%	PASS	1	30	PASS
Naphthalene	Total	0.393	1	0.001	0.005	µg/L	0.5	0	79	41 - 126%	PASS	8	30	PASS
Perylene	Total	0.453	1	0.001	0.005	µg/L	0.5	0	91	48 - 141%	PASS	2	30	PASS
Phenanthrene	Total	0.423	1	0.001	0.005	µg/L	0.5	0	85	67 - 127%	PASS	4	30	PASS
Pyrene	Total	0.473	1	0.001	0.005	µg/L	0.5	0	95	54 - 156%	PASS	6	30	PASS

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PHYSIS

TENTATIVELY

IDENTIFIED COMPOUNDS

ENVIRONMENTAL LABORATORIES, INC.

Innovative Solutions for Nature

Sample ID: 99776

RT	Area Pct	Concentration (ng/L)	Library/ID	Cas Number	Match Qual
32.5334	10.3948	1111	Anthracene-D10	1517-22-2	95
No Compounds Met The Search Criteria					

Concentration estimated using the response for Anthracene-d10

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- 17

Sample ID: B1_38104

RT	Area Pct	Concentration (ng/L)	Library/ID	Cas Number	Match Qual
32.5320	8.1329	1111	Anthracene-D10-	1517-22-2	97
17.6300	0.9559	131	Propanoic acid, 2-methyl-, 3-hydroxy-2,2,4-trimethylpentyl ester	77-68-9	97

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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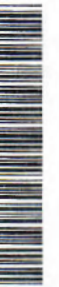
Chain of Custody Record

eurofins

Environment Testing
America

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



COC No: 380-20109-1

Page: Page 1 of 1

10/9/2022

Client Information (Sub Contract Lab)

Client Contact: **Physis Environmental Laboratories**
 Shipping/Receiving: **Physis Environmental Laboratories**
 Address: 1904 Wright Circle,
 City: Anaheim
 State, Zip: CA, 92806
 Phone: PO #:
 Email: WO #:
 Project #: 38001111
 Site: SSCM#: Honolulu BWS Slices
 Due Date Requested: 9/7/2022
 TAT Requested (days):
 Lab Piv.: Frank, Debbie L.
 E-Mail: Debbie.Frank@et.eurofins.com
 State of Origin: Hawaii
 Accreditation Required (See note): State - Hawaii
 Carrier Tracking No(s):
 Page: Page 1 of 1
 Job #: 380-18990-1

Analysis Requested

- Preservation Codes:**
 A - HCL
 B - NaOH
 C - Zn Acetate
 D - Nitric Acid
 E - NaHSO4
 F - MeOH
 G - Amchlor
 H - Acetic Acid
 I - Isop
 J - DI Water
 K - EDTA
 L - EDA
 M - Hexane
 N - None
 O - AsHClO2
 P - Na2O4S
 Q - Na2SO3
 R - Na2S2O3
 S - H2SO4
 T - TSP Dodecalhydrate
 U - Acetone
 V - MCAA
 W - pH 4-5
 Y - Triana
 Z - other (specify)

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (Q=comp, G=grab)	Matrix (Water, Seawater, Brackish, A.A.H.)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Analysis Requested	Special Instructions/Note:
HALAWA WELLS P1 (331-023-W1065) (380-18990-1)	8/29/22	09:30 Hawaiian	Water	Water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	SUB (625 PAH Physis LL (EAL) + TICs) 625 PAH Physis LL (EAL) + TICs	See Attached Instructions
					Total Number of Containers: 2			

Unconfirmed Possible Hazard Identification
 Deliverable Requested: I, II, III, IV, Other (Specify) Primary Deliverable Rank: 2
 Empty Kit Relinquished by: Date:
 Relinquished by: [Signature] Date/Time: 8/31/22 1340
 Relinquished by: [Signature] Date/Time: 8/31/22 1340
 Custody Seal Intact: A Yes A No Custody Seal No.:
 Cooler Temperature(s) °C and Other Remarks:

Project Iteration ID: 1407003-284
 Client Name: Eurofins Eaton Analytical
 Project Name: RED-HILL Project # 38001111
 Job # 380-18990-1
 COC Page Number: 2 of 2
 Bottle Label Color: NA

Sample Receipt Summary

Receiving Info

1. Initials Received By: AD
2. Date Received: 8/31/22
3. Time Received: 1340
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)
 - 1 Cooler
 - Styrofoam Cooler
 - Boxes
 - None
 - Carboy(s)
 - Carboy Trash Can(s)
 - Carboy Cap(s)
 - Other _____
7. What type of ice was used: (Please circle any that apply)
 - Wet Ice
 - Blue Ice
 - Dry Ice
 - Water
 - None
8. Randomly Selected Samples Temperature (°C): 5.0
 Used I/R Thermometer # 1-2

Inspection Info

1. Initials Inspected By: AD

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:

750 Royal Oaks Drive, Suite 100
 Monrovia, CA 91016-3629
 Phone: 626 386 1100
 Fax: 626 386 1101
 800 566 LABS (800 566 5227)

CHAIN OF CUSTODY RECORD

EUROFINS EATON ANALYTICAL USE ONLY:

LOGIN COMMENTS: _____

SAMPLES CHECKED AGAINST COC BY: ES

SAMPLES LOGGED IN BY: _____

SAMPLES REC'D DAY OF COLLECTION? (check for yes)

SAMPLE TEMP RECEIVED AT: _____ °C (Compliance: 4 ± 2 °C)

Colton / No. California / Arizona

Monrovia

CONDITION OF BLUE ICE: Frozen Partially Frozen _____ Thawed _____ No Ice _____

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

TO BE COMPLETED BY SAMPLER:

COMPANY/AGENCY NAME:		PROJECT CODE:		COMPLIANCE SAMPLES		NON-COMPLIANCE SAMPLES		REGULATION INVOLVED:				
BWS HONOLULULU		Red Hill Special		- Requires state forms		[]		[]				
COE CLIENT CODE:		SAMPLE GROUP:		Type of samples (circle one):		ROUTINE		SPECIAL CONFIRMATION				
		Weekly_RED_HILL (2022)		SEE ATTACHED BOTTLE ORDER FOR ANALYSES		[]		[]				
TAT requested: rush by adv notice only		STD __ 1 wk __ X_ 3 day __ 2 day __ 1 day __		list ANALYSES REQUIRED (enter number of bottles sent for each test for each sample)								
SAMPLE DATE	SAMPLE TIME	SAMPLE ID	CLIENT LAB ID	MATRIX	FIELD DATA	FIELD DATA	525.2 PREC + (MOD) 525plus TICS (2x1L)	625 PAH + MS/MSD Volume (2x1L)	Subcontract - 6015 Diesel and Motor Oil.C (2x1L)	Subcontract - 6015 Gas (Purgeable) (4x40mL)	8015 Gas .C TB (2x40mL)	SAMPLER COMMENTS
8/29/22	0930	Halawa Wells Pump 1	331-023	RGW			2	2	2	4	2	
												Temp Blank: <u>1</u> °C
												380-18990 COC

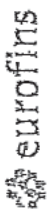
*** MATRIX TYPES:** RSW = Raw Surface Water
 RGW = Raw Ground Water
 CFW = Chlor(am)inated Finished Water
 FW = Other Finished Water
 SEAW = Sea Water
 WW = Waste Water
 BW = Bottled Water
 SW = Storm Water
 SO = Soil
 SL = Sludge

O = Other - Please Identify

SIGNATURE: _____
PRINT NAME: Lesli Laanui

SAMPLED BY: _____
RELINQUISHED BY: _____
RECEIVED BY: Heidi Castro
RELINQUISHED BY: _____

COMPANY/TITLE	DATE	TIME
Honolulu Board of Water Supply	8/29/2022	0930
Honolulu Board of Water Supply	8/29/2022	1200
EEA	8-30-22	10:00



INTERNAL CHAIN OF CUSTODY RECORD

Eaton Analytical

EEA Folder Number:

SAMPLE TEMP RECEIVED:

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

SAMPLES REC'D DAY OF COLLECTION? Yes / No

IR Gun ID = 630A (Observation = 3.1 °C) (Corr. Factor = -0.1 °C) (Final = 3.0 °C)

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

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

Compliance Acceptance Criteria:

- 1) Chemistry: >0, ≤ 6°C, not frozen (NELAP) (if received after 24 hrs of sample collection)
- 2) Microbiology, Distribution: < 10°C, not frozen (can be ≥ 10°C if received on ice the same day as sample collection, within 8 hours)
- 3) Microbiology, Surface Water: < 10°C (if received after 2 hours of sample collection)

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

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

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

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

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

7) Headspace: No Samples with Headspace; _____ Samples with Headspace (see below): _____

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

Exempt from headspace concerns: Methods 815.4, HAA(9251,662), 506, BPXIE, @CH, 532LOMS, 658, 658, Anstoxin, LCMS methods using 40 ml vials, International clients:

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

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

RECEIVED BY	SIGNATURE	PRINT NAME	COMPANY/TITLE	DATE	TIME
Herdi Castro		Herdi Castro	Eurofins Eaton Analytical	8-30-22	1000
G. FEITNER		G. FEITNER	Eurofins Eaton Analytical	08/30/2022	13:43

SAMPLES CHECKED AGAINST DOB BY



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

SHIP DATE: 29AUG22
ACTWGT: 75.00 LB
CAD: 100205419/INNET4530

BILL RECIPIENT

TO **C CHUCK**
EUROFINS EATON ANALYTICAL, INC
750 ROYAL OAKS DR
SUITE 100
MONROVIA CA 91016
(626) 386-1178 REF
INV/ PO

581J1/E08C/FE2D

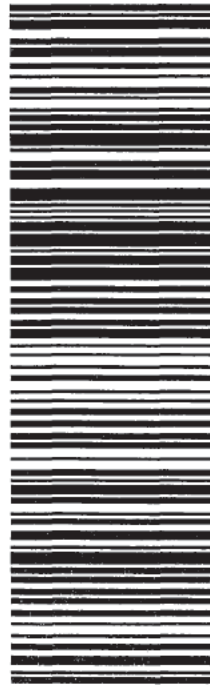
DEPT



TUE - 30 AUG 10:30A
PRIORITY OVERNIGHT

TRK# 7777 9258 9134
0201

WZ WHPA
91016
CA-US BUR



After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.

3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.
Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of \$100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of \$100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is \$1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our Service Guide. Written claims must be filed within strict time limits, see current FedEx Service Guide.



Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-18990-1

Login Number: 18990

List Source: Eurofins Eaton Monrovia

List Number: 1

Creator: Ngo, Theodore

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	

