

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18

ANALYTICAL REPORT

PREPARED FOR

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

Generated 3/2/2023 9:30:53 PM

JOB DESCRIPTION

RED-HILL
RUSH Weekly Red Hill

JOB NUMBER

380-34938-1

Eurofins Drinking Water Testing Pomona

Job Notes

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

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

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

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

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

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

Compliance Statement

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

Authorization



Generated
3/2/2023 9:30:53 PM

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



Table of Contents

Cover Page	1
Table of Contents	3
Definitions/Glossary	4
Case Narrative	5
Detection Summary	6
Client Sample Results	7
Action Limit Summary	14
Surrogate Summary	15
Isotope Dilution Summary	19
QC Sample Results	21
QC Association Summary	49
Lab Chronicle	52
Certification Summary	53
Method Summary	56
Sample Summary	57
Subcontract Data	58
Chain of Custody	118
Receipt Checklists	120

Definitions/Glossary

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

Job ID: 380-34938-1

Qualifiers

GC/MS Semi VOA

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

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.

LCMS

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

Subcontract

Qualifier	Qualifier Description
U	This analyte was not detected.

Glossary

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

Case Narrative

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

Job ID: 380-34938-1

Job ID: 380-34938-1

Laboratory: Eurofins Drinking Water Testing Pomona

Narrative

Job Narrative 380-34938-1

Comments

No additional comments.

Receipt

The samples were received on 1/19/2023 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 2.9° C.

Receipt Exceptions

The Chain-of-Custody (COC) was incomplete as received and/or improperly completed. On the COC, the analyses that are requested for TB: AIEA WELLS PUMPS 1&2 (260) should actually be for AIEA WELLS PUMPS 1&2 (260).

GC/MS Semi VOA

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

LCMS

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

Subcontract non-Sister

See attached subcontract report.

Organic Prep

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

Subcontract Work

Methods 8015 Gas (Purgeable) LL (EAL), 8015 LL DRO/MRO/JP5/JP8: These methods were subcontracted to EMAX Laboratories Inc. The subcontract laboratory certifications are different from that of the facility issuing the final report.

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

Detection Summary

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

Job ID: 380-34938-1

Client Sample ID: AIEA WELLS PUMPS 1&2 (260)
PWSID Number: HI0000331

Lab Sample ID: 380-34938-1

No Detections.

Client Sample ID: TB: AIEA WELLS PUMPS 1&2 (260)

Lab Sample ID: 380-34938-2

No Detections.

Client Sample ID: FB: AIEA WELLS PUMPS 1&2 (260)

Lab Sample ID: 380-34938-3

No Detections.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18

This Detection Summary does not include radiochemical test results.

Client Sample Results

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

Job ID: 380-34938-1

Client Sample ID: AIEA WELLS PUMPS 1&2 (260)

Lab Sample ID: 380-34938-1

Date Collected: 01/17/23 09:00

Matrix: Drinking Water

Date Received: 01/19/23 10:00

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		0.096	ug/L		01/20/23 05:58	01/20/23 22:26	1
2,4'-DDE	ND		0.096	ug/L		01/20/23 05:58	01/20/23 22:26	1
2,4'-DDT	ND		0.096	ug/L		01/20/23 05:58	01/20/23 22:26	1
2,4-Dinitrotoluene	ND		0.096	ug/L		01/20/23 05:58	01/20/23 22:26	1
2,6-Dinitrotoluene	ND		0.096	ug/L		01/20/23 05:58	01/20/23 22:26	1
4,4'-DDD	ND		0.096	ug/L		01/20/23 05:58	01/20/23 22:26	1
4,4'-DDE	ND		0.096	ug/L		01/20/23 05:58	01/20/23 22:26	1
4,4'-DDT	ND		0.096	ug/L		01/20/23 05:58	01/20/23 22:26	1
Acenaphthene	ND		0.096	ug/L		01/20/23 05:58	01/20/23 22:26	1
Acenaphthylene	ND		0.096	ug/L		01/20/23 05:58	01/20/23 22:26	1
Acetochlor	ND		0.096	ug/L		01/20/23 05:58	01/20/23 22:26	1
Alachlor	ND		0.048	ug/L		01/20/23 05:58	01/20/23 22:26	1
alpha-BHC	ND		0.096	ug/L		01/20/23 05:58	01/20/23 22:26	1
alpha-Chlordane	ND		0.048	ug/L		01/20/23 05:58	01/20/23 22:26	1
Anthracene	ND		0.019	ug/L		01/20/23 05:58	01/20/23 22:26	1
Atrazine	ND		0.048	ug/L		01/20/23 05:58	01/20/23 22:26	1
Benz(a)anthracene	ND		0.048	ug/L		01/20/23 05:58	01/20/23 22:26	1
Benzo[a]pyrene	ND		0.019	ug/L		01/20/23 05:58	01/20/23 22:26	1
Benzo[b]fluoranthene	ND		0.019	ug/L		01/20/23 05:58	01/20/23 22:26	1
Benzo[g,h,i]perylene	ND		0.048	ug/L		01/20/23 05:58	01/20/23 22:26	1
Benzo[k]fluoranthene	ND		0.019	ug/L		01/20/23 05:58	01/20/23 22:26	1
beta-BHC	ND		0.096	ug/L		01/20/23 05:58	01/20/23 22:26	1
Bromacil	ND		0.096	ug/L		01/20/23 05:58	01/20/23 22:26	1
Butachlor	ND		0.048	ug/L		01/20/23 05:58	01/20/23 22:26	1
Butylbenzylphthalate	ND		0.48	ug/L		01/20/23 05:58	01/20/23 22:26	1
Caffeine	ND		0.048	ug/L		01/20/23 05:58	01/20/23 22:26	1
Chlorobenzilate	ND		0.096	ug/L		01/20/23 05:58	01/20/23 22:26	1
Chloroneb	ND		0.096	ug/L		01/20/23 05:58	01/20/23 22:26	1
Chlorothalonil (Draconil, Bravo)	ND		0.096	ug/L		01/20/23 05:58	01/20/23 22:26	1
Chlorpyrifos	ND		0.048	ug/L		01/20/23 05:58	01/20/23 22:26	1
Chrysene	ND		0.019	ug/L		01/20/23 05:58	01/20/23 22:26	1
delta-BHC	ND		0.096	ug/L		01/20/23 05:58	01/20/23 22:26	1
Di(2-ethylhexyl)adipate	ND	^3+	0.58	ug/L		01/20/23 05:58	01/20/23 22:26	1
Bis(2-ethylhexyl) phthalate	ND		0.58	ug/L		01/20/23 05:58	01/20/23 22:26	1
Diazinon (Qualitative)	ND		0.096	ug/L		01/20/23 05:58	01/20/23 22:26	1
Dibenz(a,h)anthracene	ND		0.048	ug/L		01/20/23 05:58	01/20/23 22:26	1
Diclorvos (DDVP)	ND		0.048	ug/L		01/20/23 05:58	01/20/23 22:26	1
Dieldrin	ND		0.19	ug/L		01/20/23 05:58	01/20/23 22:26	1
Diethylphthalate	ND		0.48	ug/L		01/20/23 05:58	01/20/23 22:26	1
Dimethoate	ND		0.096	ug/L		01/20/23 05:58	01/20/23 22:26	1
Dimethylphthalate	ND		0.48	ug/L		01/20/23 05:58	01/20/23 22:26	1
Di-n-butyl phthalate	ND		0.96	ug/L		01/20/23 05:58	01/20/23 22:26	1
Di-n-octyl phthalate	ND		0.096	ug/L		01/20/23 05:58	01/20/23 22:26	1
Endosulfan I (Alpha)	ND		0.096	ug/L		01/20/23 05:58	01/20/23 22:26	1
Endosulfan II (Beta)	ND		0.096	ug/L		01/20/23 05:58	01/20/23 22:26	1
Endosulfan sulfate	ND		0.096	ug/L		01/20/23 05:58	01/20/23 22:26	1
Endrin	ND		0.096	ug/L		01/20/23 05:58	01/20/23 22:26	1
Endrin aldehyde	ND	^3+	0.096	ug/L		01/20/23 05:58	01/20/23 22:26	1
EPTC	ND		0.096	ug/L		01/20/23 05:58	01/20/23 22:26	1

Client Sample Results

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

Job ID: 380-34938-1

Client Sample ID: AIEA WELLS PUMPS 1&2 (260)

Lab Sample ID: 380-34938-1

Date Collected: 01/17/23 09:00

Matrix: Drinking Water

Date Received: 01/19/23 10:00

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoranthene	ND		0.096	ug/L		01/20/23 05:58	01/20/23 22:26	1
Fluorene	ND		0.048	ug/L		01/20/23 05:58	01/20/23 22:26	1
gamma-Chlordane	ND	^3+	0.048	ug/L		01/20/23 05:58	01/20/23 22:26	1
Heptachlor	ND		0.039	ug/L		01/20/23 05:58	01/20/23 22:26	1
Heptachlor epoxide (isomer B)	ND	^3+	0.048	ug/L		01/20/23 05:58	01/20/23 22:26	1
Hexachlorobenzene	ND		0.048	ug/L		01/20/23 05:58	01/20/23 22:26	1
Hexachlorocyclopentadiene	ND		0.048	ug/L		01/20/23 05:58	01/20/23 22:26	1
Indeno[1,2,3-cd]pyrene	ND		0.048	ug/L		01/20/23 05:58	01/20/23 22:26	1
Isophorone	ND		0.48	ug/L		01/20/23 05:58	01/20/23 22:26	1
Lindane	ND		0.039	ug/L		01/20/23 05:58	01/20/23 22:26	1
Malathion	ND		0.096	ug/L		01/20/23 05:58	01/20/23 22:26	1
Methoxychlor	ND		0.096	ug/L		01/20/23 05:58	01/20/23 22:26	1
Metolachlor	ND		0.048	ug/L		01/20/23 05:58	01/20/23 22:26	1
Metribuzin	ND		0.048	ug/L		01/20/23 05:58	01/20/23 22:26	1
Molinate	ND		0.096	ug/L		01/20/23 05:58	01/20/23 22:26	1
Naphthalene	ND		0.29	ug/L		01/20/23 05:58	01/20/23 22:26	1
Parathion	ND		0.096	ug/L		01/20/23 05:58	01/20/23 22:26	1
Pendimethalin (Penoxaline)	ND		0.096	ug/L		01/20/23 05:58	01/20/23 22:26	1
Total Permethrin (mixed isomers)	ND		0.19	ug/L		01/20/23 05:58	01/20/23 22:26	1
Phenanthrene	ND		0.039	ug/L		01/20/23 05:58	01/20/23 22:26	1
Propachlor	ND		0.048	ug/L		01/20/23 05:58	01/20/23 22:26	1
Pyrene	ND		0.048	ug/L		01/20/23 05:58	01/20/23 22:26	1
Simazine	ND		0.048	ug/L		01/20/23 05:58	01/20/23 22:26	1
Terbacil	ND		0.096	ug/L		01/20/23 05:58	01/20/23 22:26	1
Terbutylazine	ND		0.096	ug/L		01/20/23 05:58	01/20/23 22:26	1
Thiobencarb	ND		0.19	ug/L		01/20/23 05:58	01/20/23 22:26	1
trans-Nonachlor	ND		0.048	ug/L		01/20/23 05:58	01/20/23 22:26	1
Trifluralin	ND		0.096	ug/L		01/20/23 05:58	01/20/23 22:26	1

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Tentatively Identified Compound	None		ug/L			N/A	01/20/23 05:58	01/20/23 22:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	98		70 - 130	01/20/23 05:58	01/20/23 22:26	1
Triphenylphosphate	112		70 - 130	01/20/23 05:58	01/20/23 22:26	1
Perylene-d12	98		70 - 130	01/20/23 05:58	01/20/23 22:26	1

Method: EPA 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafiuoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:23	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:23	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:23	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:23	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:23	1
Perfluorodecanoic acid (PFDA)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:23	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:23	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:23	1

Eurofins Drinking Water Testing Pomona

Client Sample Results

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

Job ID: 380-34938-1

Client Sample ID: AIEA WELLS PUMPS 1&2 (260)

Lab Sample ID: 380-34938-1

Date Collected: 01/17/23 09:00

Matrix: Drinking Water

Date Received: 01/19/23 10:00

PWSID Number: HI0000331

Method: EPA 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:23	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:23	1
Perfluorononanoic acid (PFNA)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:23	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:23	1
Perfluorooctanoic acid (PFOA)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:23	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:23	1
Perfluorobutanoic acid (PFBA)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:23	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:23	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:23	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:23	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:23	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:23	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:23	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:23	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:23	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:23	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:23	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	62		50 - 200	01/25/23 11:40	01/27/23 20:23	1
13C6 PFDA	75		50 - 200	01/25/23 11:40	01/27/23 20:23	1
13C5 PFHxA	69		50 - 200	01/25/23 11:40	01/27/23 20:23	1
13C4 PFHpA	73		50 - 200	01/25/23 11:40	01/27/23 20:23	1
13C8 PFOA	77		50 - 200	01/25/23 11:40	01/27/23 20:23	1
13C9 PFNA	81		50 - 200	01/25/23 11:40	01/27/23 20:23	1
13C7 PFUnA	85		50 - 200	01/25/23 11:40	01/27/23 20:23	1
13C2 PFDoA	83		50 - 200	01/25/23 11:40	01/27/23 20:23	1
13C4 PFBA	75		50 - 200	01/25/23 11:40	01/27/23 20:23	1
13C5 PFPeA	76		50 - 200	01/25/23 11:40	01/27/23 20:23	1
13C3 PFBS	100		50 - 200	01/25/23 11:40	01/27/23 20:23	1
13C3 PFHxS	96		50 - 200	01/25/23 11:40	01/27/23 20:23	1
13C8 PFOS	101		50 - 200	01/25/23 11:40	01/27/23 20:23	1
13C2-4:2-FTS	110		50 - 200	01/25/23 11:40	01/27/23 20:23	1
13C2-6:2-FTS	106		50 - 200	01/25/23 11:40	01/27/23 20:23	1
13C2-8:2-FTS	101		50 - 200	01/25/23 11:40	01/27/23 20:23	1

Method: EPA 537.1 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 13:57	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 13:57	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 13:57	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 13:57	1

Client Sample Results

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

Job ID: 380-34938-1

Client Sample ID: AIEA WELLS PUMPS 1&2 (260)

Lab Sample ID: 380-34938-1

Date Collected: 01/17/23 09:00

Matrix: Drinking Water

Date Received: 01/19/23 10:00

PWSID Number: HI0000331

Method: EPA 537.1 - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
N-ethylperfluorooctanesulfonamidoacetic acid (NETFOSAA)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 13:57	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 13:57	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 13:57	1
Perfluorooctanoic acid (PFOA)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 13:57	1
Perfluorodecanoic acid (PFDA)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 13:57	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 13:57	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 13:57	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 13:57	1
Perfluorononanoic acid (PFNA)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 13:57	1
Perfluorotetradecanoic acid (PFTA)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 13:57	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 13:57	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 13:57	1
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 13:57	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 13:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NETFOSAA	95		70 - 130	01/20/23 07:15	01/23/23 13:57	1
13C2 PFHxA	110		70 - 130	01/20/23 07:15	01/23/23 13:57	1
13C2 PFDA	105		70 - 130	01/20/23 07:15	01/23/23 13:57	1
13C3-GenX	108		70 - 130	01/20/23 07:15	01/23/23 13:57	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		0.005	0.001	µg/L		01/20/23 00:00	02/12/23 18:07	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		01/20/23 00:00	02/12/23 18:07	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		01/20/23 00:00	02/12/23 18:07	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		01/20/23 00:00	02/12/23 18:07	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		01/20/23 00:00	02/12/23 18:07	1
Acenaphthene	ND		0.005	0.001	µg/L		01/20/23 00:00	02/12/23 18:07	1
Acenaphthylene	ND		0.005	0.001	µg/L		01/20/23 00:00	02/12/23 18:07	1
Anthracene	ND		0.005	0.001	µg/L		01/20/23 00:00	02/12/23 18:07	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		01/20/23 00:00	02/12/23 18:07	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		01/20/23 00:00	02/12/23 18:07	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		01/20/23 00:00	02/12/23 18:07	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		01/20/23 00:00	02/12/23 18:07	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		01/20/23 00:00	02/12/23 18:07	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		01/20/23 00:00	02/12/23 18:07	1
Biphenyl	ND		0.005	0.001	µg/L		01/20/23 00:00	02/12/23 18:07	1
Chrysene	ND		0.005	0.001	µg/L		01/20/23 00:00	02/12/23 18:07	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		01/20/23 00:00	02/12/23 18:07	1
Dibenzo[a,i]pyrene	ND		0.005	0.001	µg/L		01/20/23 00:00	02/12/23 18:07	1
Dibenzothiophene	ND		0.005	0.001	µg/L		01/20/23 00:00	02/12/23 18:07	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		01/20/23 00:00	02/12/23 18:07	1
Fluoranthene	ND		0.005	0.001	µg/L		01/20/23 00:00	02/12/23 18:07	1
Fluorene	ND		0.005	0.001	µg/L		01/20/23 00:00	02/12/23 18:07	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		01/20/23 00:00	02/12/23 18:07	1
Naphthalene	ND		0.005	0.001	µg/L		01/20/23 00:00	02/12/23 18:07	1

Client Sample Results

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

Job ID: 380-34938-1

Client Sample ID: AIEA WELLS PUMPS 1&2 (260)

Lab Sample ID: 380-34938-1

Date Collected: 01/17/23 09:00

Matrix: Drinking Water

Date Received: 01/19/23 10:00

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perylene	ND		0.005	0.001	µg/L		01/20/23 00:00	02/12/23 18:07	1
Phenanthrene	ND		0.005	0.001	µg/L		01/20/23 00:00	02/12/23 18:07	1
Pyrene	ND		0.005	0.001	µg/L		01/20/23 00:00	02/12/23 18:07	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	91		27 - 133				01/20/23 00:00	02/12/23 18:07	1
(d10-Phenanthrene)	90		43 - 129				01/20/23 00:00	02/12/23 18:07	1
(d12-Chrysene)	95		52 - 144				01/20/23 00:00	02/12/23 18:07	1
(d12-Perylene)	88		36 - 161				01/20/23 00:00	02/12/23 18:07	1
(d8-Naphthalene)	83		25 - 125				01/20/23 00:00	02/12/23 18:07	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GASOLINE	ND	U	0.02		mg/L			01/24/23 13:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
BROMOFLUOROBENZENE	93		60 - 140					01/24/23 13:50	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DIESEL	ND	U	0.025		mg/L			01/24/23 23:36	1
JP5	ND	U	0.049		mg/L			01/24/23 23:36	1
JP8	ND	U	0.049		mg/L			01/24/23 23:36	1
MOTOR OIL	ND	U	0.049		mg/L			01/24/23 23:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
BROMOBENZENE	88		60 - 130					01/24/23 23:36	1
HEXACOSANE	119		60 - 130					01/24/23 23:36	1

Client Sample ID: TB: AIEA WELLS PUMPS 1&2 (260)

Lab Sample ID: 380-34938-2

Date Collected: 01/17/23 09:00

Matrix: Water

Date Received: 01/19/23 10:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GASOLINE	ND	U	0.02		mg/L			01/24/23 15:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
BROMOFLUOROBENZENE	94		60 - 140					01/24/23 15:42	1

Client Sample ID: FB: AIEA WELLS PUMPS 1&2 (260)

Lab Sample ID: 380-34938-3

Date Collected: 01/17/23 09:00

Matrix: Water

Date Received: 01/19/23 10:00

Method: EPA 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafuoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	ND		2.0		ng/L		01/25/23 11:40	01/27/23 20:33	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	ND		2.0		ng/L		01/25/23 11:40	01/27/23 20:33	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0		ng/L		01/25/23 11:40	01/27/23 20:33	1

Client Sample Results

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

Job ID: 380-34938-1

Client Sample ID: FB: AIEA WELLS PUMPS 1&2 (260)

Lab Sample ID: 380-34938-3

Date Collected: 01/17/23 09:00

Matrix: Water

Date Received: 01/19/23 10:00

Method: EPA 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:33	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:33	1
Perfluorodecanoic acid (PFDA)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:33	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:33	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:33	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:33	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:33	1
Perfluorononanoic acid (PFNA)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:33	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:33	1
Perfluorooctanoic acid (PFOA)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:33	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:33	1
Perfluorobutanoic acid (PFBA)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:33	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:33	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:33	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:33	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:33	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:33	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:33	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:33	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:33	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:33	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 20:33	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	90		50 - 200	01/25/23 11:40	01/27/23 20:33	1
13C6 PFDA	95		50 - 200	01/25/23 11:40	01/27/23 20:33	1
13C5 PFHxA	101		50 - 200	01/25/23 11:40	01/27/23 20:33	1
13C4 PFHpA	102		50 - 200	01/25/23 11:40	01/27/23 20:33	1
13C8 PFOA	98		50 - 200	01/25/23 11:40	01/27/23 20:33	1
13C9 PFNA	101		50 - 200	01/25/23 11:40	01/27/23 20:33	1
13C7 PFUnA	93		50 - 200	01/25/23 11:40	01/27/23 20:33	1
13C2 PFDoA	94		50 - 200	01/25/23 11:40	01/27/23 20:33	1
13C4 PFBA	102		50 - 200	01/25/23 11:40	01/27/23 20:33	1
13C5 PFPeA	107		50 - 200	01/25/23 11:40	01/27/23 20:33	1
13C3 PFBS	107		50 - 200	01/25/23 11:40	01/27/23 20:33	1
13C3 PFHxS	101		50 - 200	01/25/23 11:40	01/27/23 20:33	1
13C8 PFOS	98		50 - 200	01/25/23 11:40	01/27/23 20:33	1
13C2-4:2-FTS	106		50 - 200	01/25/23 11:40	01/27/23 20:33	1
13C2-6:2-FTS	106		50 - 200	01/25/23 11:40	01/27/23 20:33	1
13C2-8:2-FTS	101		50 - 200	01/25/23 11:40	01/27/23 20:33	1

Client Sample Results

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

Job ID: 380-34938-1

Client Sample ID: FB: AIEA WELLS PUMPS 1&2 (260)

Lab Sample ID: 380-34938-3

Date Collected: 01/17/23 09:00

Matrix: Water

Date Received: 01/19/23 10:00

Method: EPA 537.1 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 14:07	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 14:07	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 14:07	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 14:07	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 14:07	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 14:07	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 14:07	1
Perfluorooctanoic acid (PFOA)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 14:07	1
Perfluorodecanoic acid (PFDA)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 14:07	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 14:07	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 14:07	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 14:07	1
Perfluorononanoic acid (PFNA)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 14:07	1
Perfluorotetradecanoic acid (PFTA)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 14:07	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 14:07	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 14:07	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 14:07	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 14:07	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	101		70 - 130			01/20/23 07:15	01/23/23 14:07	1
13C2 PFHxA	112		70 - 130			01/20/23 07:15	01/23/23 14:07	1
13C2 PFDA	109		70 - 130			01/20/23 07:15	01/23/23 14:07	1
13C3-GenX	109		70 - 130			01/20/23 07:15	01/23/23 14:07	1

Action Limit Summary

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

Job ID: 380-34938-1

Client Sample ID: AIEA WELLS PUMPS 1&2 (260)

Lab Sample ID: 380-34938-1

PWSID Number: HI0000331

Compliance Check

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

Analyte	Result	Qualifier	Unit	EPAMCL	RL	Method	Prep Type
				Limit			
Alachlor	ND		ug/L	2	0.048	525.2	Total/NA
Atrazine	ND		ug/L	3	0.048	525.2	Total/NA
Benzo[a]pyrene	ND		ug/L	0.2	0.019	525.2	Total/NA
Di(2-ethylhexyl)adipate	ND	^3+	ug/L	400	0.58	525.2	Total/NA
Bis(2-ethylhexyl) phthalate	ND		ug/L	6	0.58	525.2	Total/NA
Endrin	ND		ug/L	2	0.096	525.2	Total/NA
Heptachlor	ND		ug/L	0.4	0.039	525.2	Total/NA
Heptachlor epoxide (isomer B)	ND	^3+	ug/L	0.2	0.048	525.2	Total/NA
Hexachlorobenzene	ND		ug/L	1	0.048	525.2	Total/NA
Hexachlorocyclopentadiene	ND		ug/L	50	0.048	525.2	Total/NA
Lindane	ND		ug/L	0.2	0.039	525.2	Total/NA
Methoxychlor	ND		ug/L	40	0.096	525.2	Total/NA
Simazine	ND		ug/L	4	0.048	525.2	Total/NA

Surrogate Summary

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

Job ID: 380-34938-1

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)
380-34938-1	AIEA WELLS PUMPS 1&2 (260)	98	112	98

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)
380-34654-R-1-A MS	Matrix Spike	100	108	99
380-34720-V-2-A DU	Duplicate	99	112	97
LCS 380-30258/3-A	Lab Control Sample	97	108	95
LCSD 380-30258/4-A	Lab Control Sample Dup	99	107	97
MB 380-30258/1-A	Method Blank	101	105	93
MRL 380-30258/2-A	Lab Control Sample	100	109	91

Surrogate Legend

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

Method: 537.1 - Perfluorinated Alkyl Acids (LC/MS)

Matrix: Drinking Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		d5NEFOS (70-130)	PFHxA (70-130)	PFDA (70-130)	GenX (70-130)
380-34938-1	AIEA WELLS PUMPS 1&2 (260)	95	110	105	108

Surrogate Legend

d5NEFOS = d5-NEtFOSAA
PFHxA = 13C2 PFHxA
PFDA = 13C2 PFDA
GenX = 13C3-GenX

Method: 537.1 - Perfluorinated Alkyl Acids (LC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		d5NEFOS (70-130)	PFHxA (70-130)	PFDA (70-130)	GenX (70-130)
380-34734-B-1-A MS	Matrix Spike	91	110	99	106
380-34734-C-1-A MSD	Matrix Spike Duplicate	90	114	103	110
380-34938-3	FB: AIEA WELLS PUMPS 1&2 (260)	101	112	109	109
LCS 380-30259/21-A	Lab Control Sample	89	111	104	108
LCSD 380-30259/22-A	Lab Control Sample Dup	94	114	106	116
MBL 380-30259/19-A	Method Blank	100	115	108	110
MRL 380-30259/20-A	Lab Control Sample	91	110	102	103

Eurofins Drinking Water Testing Pomona

Surrogate Summary

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

Job ID: 380-34938-1

Surrogate Legend

d5NEFOS = d5-NEtFOSAA
PFHxA = 13C2 PFHxA
PFDA = 13C2 PFDA
GenX = 13C3-GenX

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

Matrix: BlankMatrix

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)				
		Acenaphtl (27-133)	Phenanth (43-129)	CRY (52-144)	NPT (25-125)	PRY (36-161)
103753-B1	Method Blank	93	94	108	88	91
103753-BS1	Lab Control Sample	96	93	96	85	93
103753-BS2	Lab Control Sample Dup	94	94	95	90	93

Surrogate Legend

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

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

Matrix: Drinking Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)				
		Acenaphtl (27-133)	Phenanth (43-129)	CRY (52-144)	NPT (25-125)	PRY (36-161)
380-34938-1	AIEA WELLS PUMPS 1&2 (260)	91	90	95	83	88

Surrogate Legend

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

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

Matrix: Drinking Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		BFB (60-140)
380-34938-1	AIEA WELLS PUMPS 1&2 (260)	93

Surrogate Legend

BFB = BROMOFLUOROBENZENE

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

Matrix: WATER

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		BFB (60-140)
23A218-01M	Matrix Spike	113
23A218-01S	Matrix Spike Duplicate	118

Surrogate Legend

Surrogate Summary

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

Job ID: 380-34938-1

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

Matrix: WATER

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

BFB

Lab Sample ID	Client Sample ID	BFB
23VGH7A09B	Method Blank	

Surrogate Legend

BFB = BROMOFLUOROBENZENE

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

Matrix: WATER

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

BFB

(70-130)

Lab Sample ID	Client Sample ID	BFB (70-130)
23VGH7A09C	LCD	118
23VGH7A09L	Lab Control Sample	113

Surrogate Legend

BFB = BROMOFLUOROBENZENE

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

BFB

(60-140)

Lab Sample ID	Client Sample ID	BFB (60-140)
380-34938-2	TB: AIEA WELLS PUMPS 1&2 (94

Surrogate Legend

BFB = BROMOFLUOROBENZENE

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

Matrix: Drinking Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

BB

XACOSAI

(60-130)

(60-130)

Lab Sample ID	Client Sample ID	BB (60-130)	XACOSAI (60-130)
380-34938-1	AIEA WELLS PUMPS 1&2 (260)	88	119

Surrogate Legend

BB = BROMOBENZENE

HEXACOSANE = HEXACOSANE

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

Matrix: WATER

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

BB

XACOSAI

(60-130)

(60-130)

Lab Sample ID	Client Sample ID	BB (60-130)	XACOSAI (60-130)
23DSA029WL	Lab Control Sample	102	115
23J5A029WL	Lab Control Sample	103	115
23J8A029WL	Lab Control Sample	105	120

Surrogate Legend

BB = BROMOBENZENE

HEXACOSANE = HEXACOSANE

Surrogate Summary

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

Job ID: 380-34938-1

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

Matrix: WATER

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

BB .XACOSAI

Lab Sample ID

Client Sample ID

23DSA029WB

Method Blank

Surrogate Legend

BB = BROMOBENZENE

HEXACOSANE = HEXACOSANE

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18

Isotope Dilution Summary

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

Job ID: 380-34938-1

Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water

Matrix: Drinking Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HFPODA (50-200)	C6PFDA (50-200)	13C5PHA (50-200)	C4PFHA (50-200)	C8PFOA (50-200)	C9PFNA (50-200)	13C7PUA (50-200)	PFDaA (50-200)
380-34938-1	AIEA WELLS PUMPS 1&2 (260)	62	75	69	73	77	81	85	83

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFBA (50-200)	PFPeA (50-200)	C3PFBS (50-200)	C3PFHS (50-200)	C8PFOS (50-200)	42FTS (50-200)	62FTS (50-200)	82FTS (50-200)
380-34938-1	AIEA WELLS PUMPS 1&2 (260)	75	76	100	96	101	110	106	101

Surrogate Legend

- HFPODA = 13C3 HFPO-DA
- C6PFDA = 13C6 PFDA
- 13C5PHA = 13C5 PFHxA
- C4PFHA = 13C4 PFHpA
- C8PFOA = 13C8 PFOA
- C9PFNA = 13C9 PFNA
- 13C7PUA = 13C7 PFUnA
- PFDaA = 13C2 PFDaA
- PFBA = 13C4 PFBA
- PFPeA = 13C5 PFPeA
- C3PFBS = 13C3 PFBS
- C3PFHS = 13C3 PFHxS
- C8PFOS = 13C8 PFOS
- 42FTS = 13C2-4:2-FTS
- 62FTS = 13C2-6:2-FTS
- 82FTS = 13C2-8:2-FTS

Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HFPODA (50-200)	C6PFDA (50-200)	13C5PHA (50-200)	C4PFHA (50-200)	C8PFOA (50-200)	C9PFNA (50-200)	13C7PUA (50-200)	PFDaA (50-200)
380-34621-A-1-A MS	Matrix Spike	75	84	79	78	82	85	88	86
380-34621-B-1-A MSD	Matrix Spike Duplicate	80	87	85	88	88	88	89	85
380-34938-3	FB: AIEA WELLS PUMPS 1&2 (260)	90	95	101	102	98	101	93	94
LCS 380-30629/3-A	Lab Control Sample	97	96	104	100	97	99	96	96
LCSD 380-30629/4-A	Lab Control Sample Dup	84	90	95	95	95	95	90	88
MBL 380-30629/1-A	Method Blank	90	95	99	95	98	99	95	99
MRL 380-30629/2-A	Lab Control Sample	86	89	95	92	92	95	89	88

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFBA (50-200)	PFPeA (50-200)	C3PFBS (50-200)	C3PFHS (50-200)	C8PFOS (50-200)	42FTS (50-200)	62FTS (50-200)	82FTS (50-200)
380-34621-A-1-A MS	Matrix Spike	85	89	102	93	98	111	107	96
380-34621-B-1-A MSD	Matrix Spike Duplicate	86	98	89	86	89	101	96	92
380-34938-3	FB: AIEA WELLS PUMPS 1&2 (260)	102	107	107	101	98	106	106	101
LCS 380-30629/3-A	Lab Control Sample	103	105	100	100	104	105	110	103
LCSD 380-30629/4-A	Lab Control Sample Dup	98	104	95	93	95	99	100	92
MBL 380-30629/1-A	Method Blank	98	103	96	95	99	100	101	104
MRL 380-30629/2-A	Lab Control Sample	97	99	96	91	96	99	97	93

Surrogate Legend

Eurofins Drinking Water Testing Pomona

Isotope Dilution Summary

Job ID: 380-34938-1

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

HFPODA = 13C3 HFPO-DA
C6PFDA = 13C6 PFDA
13C5PHA = 13C5 PFHxA
C4PFHA = 13C4 PFHpA
C8PFOA = 13C8 PFOA
C9PFNA = 13C9 PFNA
13C7PUA = 13C7 PFUnA
PFDoA = 13C2 PFDoA
PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
C3PFBS = 13C3 PFBS
C3PFHS = 13C3 PFHxS
C8PFOS = 13C8 PFOS
42FTS = 13C2-4:2-FTS
62FTS = 13C2-6:2-FTS
82FTS = 13C2-8:2-FTS

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18

QC Sample Results

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

Job ID: 380-34938-1

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

Lab Sample ID: MB 380-30258/1-A
Matrix: Water
Analysis Batch: 30320

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 30258

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
2,4'-DDD	ND		0.099	ug/L		01/20/23 05:58	01/20/23 16:25	1
2,4'-DDE	ND		0.099	ug/L		01/20/23 05:58	01/20/23 16:25	1
2,4'-DDT	ND		0.099	ug/L		01/20/23 05:58	01/20/23 16:25	1
2,4-Dinitrotoluene	ND		0.099	ug/L		01/20/23 05:58	01/20/23 16:25	1
2,6-Dinitrotoluene	ND		0.099	ug/L		01/20/23 05:58	01/20/23 16:25	1
4,4'-DDD	ND		0.099	ug/L		01/20/23 05:58	01/20/23 16:25	1
4,4'-DDE	ND		0.099	ug/L		01/20/23 05:58	01/20/23 16:25	1
4,4'-DDT	ND		0.099	ug/L		01/20/23 05:58	01/20/23 16:25	1
Acenaphthene	ND		0.099	ug/L		01/20/23 05:58	01/20/23 16:25	1
Acenaphthylene	ND		0.099	ug/L		01/20/23 05:58	01/20/23 16:25	1
Acetochlor	ND		0.099	ug/L		01/20/23 05:58	01/20/23 16:25	1
Alachlor	ND		0.049	ug/L		01/20/23 05:58	01/20/23 16:25	1
alpha-BHC	ND		0.099	ug/L		01/20/23 05:58	01/20/23 16:25	1
alpha-Chlordane	ND		0.049	ug/L		01/20/23 05:58	01/20/23 16:25	1
Anthracene	ND		0.020	ug/L		01/20/23 05:58	01/20/23 16:25	1
Atrazine	ND		0.049	ug/L		01/20/23 05:58	01/20/23 16:25	1
Benz(a)anthracene	ND		0.049	ug/L		01/20/23 05:58	01/20/23 16:25	1
Benzo[a]pyrene	ND		0.020	ug/L		01/20/23 05:58	01/20/23 16:25	1
Benzo[b]fluoranthene	ND		0.020	ug/L		01/20/23 05:58	01/20/23 16:25	1
Benzo[g,h,i]perylene	ND		0.049	ug/L		01/20/23 05:58	01/20/23 16:25	1
Benzo[k]fluoranthene	ND		0.020	ug/L		01/20/23 05:58	01/20/23 16:25	1
beta-BHC	ND		0.099	ug/L		01/20/23 05:58	01/20/23 16:25	1
Bromacil	ND		0.099	ug/L		01/20/23 05:58	01/20/23 16:25	1
Butachlor	ND		0.049	ug/L		01/20/23 05:58	01/20/23 16:25	1
Butylbenzylphthalate	ND		0.49	ug/L		01/20/23 05:58	01/20/23 16:25	1
Caffeine	ND		0.049	ug/L		01/20/23 05:58	01/20/23 16:25	1
Chlorobenzilate	ND		0.099	ug/L		01/20/23 05:58	01/20/23 16:25	1
Chloroneb	ND		0.099	ug/L		01/20/23 05:58	01/20/23 16:25	1
Chlorothalonil (Draconil, Bravo)	ND		0.099	ug/L		01/20/23 05:58	01/20/23 16:25	1
Chlorpyrifos	ND		0.049	ug/L		01/20/23 05:58	01/20/23 16:25	1
Chrysene	ND		0.020	ug/L		01/20/23 05:58	01/20/23 16:25	1
delta-BHC	ND		0.099	ug/L		01/20/23 05:58	01/20/23 16:25	1
Di(2-ethylhexyl)adipate	ND		0.59	ug/L		01/20/23 05:58	01/20/23 16:25	1
Bis(2-ethylhexyl) phthalate	ND		0.59	ug/L		01/20/23 05:58	01/20/23 16:25	1
Diazinon (Qualitative)	ND		0.099	ug/L		01/20/23 05:58	01/20/23 16:25	1
Dibenz(a,h)anthracene	ND		0.049	ug/L		01/20/23 05:58	01/20/23 16:25	1
Diclorvos (DDVP)	ND		0.049	ug/L		01/20/23 05:58	01/20/23 16:25	1
Dieldrin	ND		0.20	ug/L		01/20/23 05:58	01/20/23 16:25	1
Diethylphthalate	ND		0.49	ug/L		01/20/23 05:58	01/20/23 16:25	1
Dimethoate	ND		0.099	ug/L		01/20/23 05:58	01/20/23 16:25	1
Dimethylphthalate	ND		0.49	ug/L		01/20/23 05:58	01/20/23 16:25	1
Di-n-butyl phthalate	ND		0.99	ug/L		01/20/23 05:58	01/20/23 16:25	1
Di-n-octyl phthalate	ND		0.099	ug/L		01/20/23 05:58	01/20/23 16:25	1
Endosulfan I (Alpha)	ND		0.099	ug/L		01/20/23 05:58	01/20/23 16:25	1
Endosulfan II (Beta)	ND		0.099	ug/L		01/20/23 05:58	01/20/23 16:25	1
Endosulfan sulfate	ND		0.099	ug/L		01/20/23 05:58	01/20/23 16:25	1
Endrin	ND		0.099	ug/L		01/20/23 05:58	01/20/23 16:25	1
Endrin aldehyde	ND		0.099	ug/L		01/20/23 05:58	01/20/23 16:25	1

QC Sample Results

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

Job ID: 380-34938-1

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

Lab Sample ID: MB 380-30258/1-A
Matrix: Water
Analysis Batch: 30320

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 30258

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
EPTC	ND		0.099	ug/L		01/20/23 05:58	01/20/23 16:25	1
Fluoranthene	ND		0.099	ug/L		01/20/23 05:58	01/20/23 16:25	1
Fluorene	ND		0.049	ug/L		01/20/23 05:58	01/20/23 16:25	1
gamma-Chlordane	ND		0.049	ug/L		01/20/23 05:58	01/20/23 16:25	1
Heptachlor	ND		0.039	ug/L		01/20/23 05:58	01/20/23 16:25	1
Heptachlor epoxide (isomer B)	ND		0.049	ug/L		01/20/23 05:58	01/20/23 16:25	1
Hexachlorobenzene	ND		0.049	ug/L		01/20/23 05:58	01/20/23 16:25	1
Hexachlorocyclopentadiene	ND		0.049	ug/L		01/20/23 05:58	01/20/23 16:25	1
Indeno[1,2,3-cd]pyrene	ND		0.049	ug/L		01/20/23 05:58	01/20/23 16:25	1
Isophorone	ND		0.49	ug/L		01/20/23 05:58	01/20/23 16:25	1
Lindane	ND		0.039	ug/L		01/20/23 05:58	01/20/23 16:25	1
Malathion	ND		0.099	ug/L		01/20/23 05:58	01/20/23 16:25	1
Methoxychlor	ND		0.099	ug/L		01/20/23 05:58	01/20/23 16:25	1
Metolachlor	ND		0.049	ug/L		01/20/23 05:58	01/20/23 16:25	1
Metribuzin	ND		0.049	ug/L		01/20/23 05:58	01/20/23 16:25	1
Molinate	ND		0.099	ug/L		01/20/23 05:58	01/20/23 16:25	1
Naphthalene	ND		0.30	ug/L		01/20/23 05:58	01/20/23 16:25	1
Parathion	ND		0.099	ug/L		01/20/23 05:58	01/20/23 16:25	1
Pendimethalin (Penoxaline)	ND		0.099	ug/L		01/20/23 05:58	01/20/23 16:25	1
Total Permethrin (mixed isomers)	ND		0.20	ug/L		01/20/23 05:58	01/20/23 16:25	1
Phenanthrene	ND		0.039	ug/L		01/20/23 05:58	01/20/23 16:25	1
Propachlor	ND		0.049	ug/L		01/20/23 05:58	01/20/23 16:25	1
Pyrene	ND		0.049	ug/L		01/20/23 05:58	01/20/23 16:25	1
Simazine	ND		0.049	ug/L		01/20/23 05:58	01/20/23 16:25	1
Terbacil	ND		0.099	ug/L		01/20/23 05:58	01/20/23 16:25	1
Terbutylazine	ND		0.099	ug/L		01/20/23 05:58	01/20/23 16:25	1
Thiobencarb	ND		0.20	ug/L		01/20/23 05:58	01/20/23 16:25	1
trans-Nonachlor	ND		0.049	ug/L		01/20/23 05:58	01/20/23 16:25	1
Trifluralin	ND		0.099	ug/L		01/20/23 05:58	01/20/23 16:25	1

Tentatively Identified Compound	MB Est. Result	MB Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Unknown	0.756	T J	ug/L		2.26	N/A	01/20/23 05:58	01/20/23 16:25	1
Decane	1.40	T J N	ug/L		2.42	124-18-5	01/20/23 05:58	01/20/23 16:25	1
9-Octadecenamamide, (Z)-	0.530	T J N	ug/L		7.57	301-02-0	01/20/23 05:58	01/20/23 16:25	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	101		70 - 130	01/20/23 05:58	01/20/23 16:25	1
Triphenylphosphate	105		70 - 130	01/20/23 05:58	01/20/23 16:25	1
Perylene-d12	93		70 - 130	01/20/23 05:58	01/20/23 16:25	1

Lab Sample ID: LCS 380-30258/3-A
Matrix: Water
Analysis Batch: 30320

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 30258

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4'-DDD	1.98	2.32		ug/L		117	70 - 130
2,4'-DDE	1.98	2.04		ug/L		103	70 - 130
2,4'-DDT	1.98	2.28		ug/L		115	70 - 130

Eurofins Drinking Water Testing Pomona

QC Sample Results

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

Job ID: 380-34938-1

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

Lab Sample ID: LCS 380-30258/3-A
Matrix: Water
Analysis Batch: 30320

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 30258

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4-Dinitrotoluene	1.98	1.79		ug/L		90	70 - 130
2,6-Dinitrotoluene	1.98	1.73		ug/L		87	70 - 130
4,4'-DDD	1.98	2.26		ug/L		114	70 - 130
4,4'-DDE	1.98	2.32		ug/L		117	70 - 130
4,4'-DDT	1.98	2.07		ug/L		104	70 - 130
Acenaphthene	1.98	1.81		ug/L		92	70 - 130
Acenaphthylene	1.98	1.75		ug/L		88	70 - 130
Acetochlor	1.98	2.04		ug/L		103	70 - 130
Alachlor	1.98	2.16		ug/L		109	70 - 130
alpha-BHC	1.98	2.06		ug/L		104	70 - 130
alpha-Chlordane	1.98	2.04		ug/L		103	70 - 130
Anthracene	1.98	1.84		ug/L		93	70 - 130
Atrazine	1.98	2.16		ug/L		109	70 - 130
Benz(a)anthracene	1.98	2.17		ug/L		110	70 - 130
Benzo[a]pyrene	1.98	1.98		ug/L		100	70 - 130
Benzo[b]fluoranthene	1.98	2.06		ug/L		104	70 - 130
Benzo[g,h,i]perylene	1.98	2.04		ug/L		103	70 - 130
Benzo[k]fluoranthene	1.98	2.09		ug/L		106	70 - 130
beta-BHC	1.98	2.12		ug/L		107	70 - 130
Bromacil	1.98	2.37		ug/L		120	70 - 130
Butachlor	1.98	2.31		ug/L		117	70 - 130
Butylbenzylphthalate	1.98	2.38		ug/L		120	70 - 130
Caffeine	1.98	1.75		ug/L		89	45 - 137
Chlorobenzilate	1.98	2.27		ug/L		115	70 - 130
Chloroneb	1.98	1.91		ug/L		97	70 - 130
Chlorothalonil (Draconil, Bravo)	1.98	2.24		ug/L		113	70 - 130
Chlorpyrifos	1.98	2.29		ug/L		116	70 - 130
Chrysene	1.98	1.99		ug/L		100	70 - 130
delta-BHC	1.98	2.13		ug/L		107	70 - 130
Di(2-ethylhexyl)adipate	1.98	2.31		ug/L		117	70 - 130
Bis(2-ethylhexyl) phthalate	1.98	1.94		ug/L		98	70 - 130
Diazinon (Qualitative)	1.98	2.03		ug/L		103	15 - 132
Dibenz(a,h)anthracene	1.98	1.98		ug/L		100	70 - 130
Diclorvos (DDVP)	1.98	1.97		ug/L		99	70 - 130
Dieldrin	1.98	2.27		ug/L		115	70 - 130
Diethylphthalate	1.98	1.92		ug/L		97	70 - 130
Dimethoate	1.98	1.49		ug/L		75	35 - 100
Dimethylphthalate	1.98	1.87		ug/L		94	70 - 130
Di-n-butyl phthalate	3.96	4.32		ug/L		109	70 - 130
Di-n-octyl phthalate	1.98	1.90		ug/L		96	70 - 130
Endosulfan I (Alpha)	1.98	2.01		ug/L		101	70 - 130
Endosulfan II (Beta)	1.98	2.27		ug/L		115	70 - 130
Endosulfan sulfate	1.98	2.52		ug/L		127	70 - 130
Endrin	1.98	2.56		ug/L		129	70 - 130
Endrin aldehyde	1.98	2.00		ug/L		101	70 - 130
EPTC	1.98	2.07		ug/L		105	70 - 130
Fluoranthene	1.98	2.07		ug/L		105	70 - 130
Fluorene	1.98	1.87		ug/L		94	70 - 130
gamma-Chlordane	1.98	1.88		ug/L		95	70 - 130

Eurofins Drinking Water Testing Pomona

QC Sample Results

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

Job ID: 380-34938-1

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

Lab Sample ID: LCS 380-30258/3-A
Matrix: Water
Analysis Batch: 30320

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 30258

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Heptachlor	1.98	2.21		ug/L		112	70 - 130
Heptachlor epoxide (isomer B)	1.98	2.01		ug/L		101	70 - 130
Hexachlorobenzene	1.98	1.94		ug/L		98	70 - 130
Hexachlorocyclopentadiene	1.98	1.96		ug/L		99	70 - 130
Indeno[1,2,3-cd]pyrene	1.98	1.99		ug/L		101	70 - 130
Isophorone	1.98	1.78		ug/L		90	70 - 130
Lindane	1.98	2.07		ug/L		105	70 - 130
Malathion	1.98	2.26		ug/L		114	70 - 130
Methoxychlor	1.98	2.37		ug/L		120	70 - 130
Metolachlor	1.98	2.32		ug/L		117	70 - 130
Metribuzin	1.98	2.23		ug/L		113	70 - 130
Molinate	1.98	2.09		ug/L		106	70 - 130
Naphthalene	1.98	1.80		ug/L		91	70 - 130
Parathion	1.98	2.24		ug/L		113	70 - 130
Pendimethalin (Penoxaline)	1.98	2.24		ug/L		113	70 - 130
Phenanthrene	1.98	1.86		ug/L		94	70 - 130
Propachlor	1.98	2.07		ug/L		104	70 - 130
Pyrene	1.98	2.11		ug/L		107	70 - 130
Simazine	1.98	2.23		ug/L		113	70 - 130
Terbacil	1.98	2.24		ug/L		113	70 - 130
Terbutylazine	1.98	2.15		ug/L		109	70 - 130
Thiobencarb	1.98	2.33		ug/L		118	70 - 130
trans-Nonachlor	1.98	2.15		ug/L		109	70 - 130
Trifluralin	1.98	2.11		ug/L		107	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Nitro-m-xylene	97		70 - 130
Triphenylphosphate	108		70 - 130
Perylene-d12	95		70 - 130

Lab Sample ID: LCSD 380-30258/4-A
Matrix: Water
Analysis Batch: 30320

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 30258

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2,4'-DDD	1.97	2.31		ug/L		117	70 - 130	1	20
2,4'-DDE	1.97	2.02		ug/L		103	70 - 130	1	20
2,4'-DDT	1.97	2.25		ug/L		114	70 - 130	1	20
2,4-Dinitrotoluene	1.97	1.83		ug/L		93	70 - 130	2	20
2,6-Dinitrotoluene	1.97	1.79		ug/L		91	70 - 130	4	20
4,4'-DDD	1.97	2.24		ug/L		114	70 - 130	1	20
4,4'-DDE	1.97	2.30		ug/L		117	70 - 130	1	20
4,4'-DDT	1.97	2.11		ug/L		107	70 - 130	2	20
Acenaphthene	1.97	1.86		ug/L		95	70 - 130	3	20
Acenaphthylene	1.97	1.82		ug/L		92	70 - 130	4	20
Acetochlor	1.97	2.05		ug/L		104	70 - 130	1	20
Alachlor	1.97	2.17		ug/L		110	70 - 130	1	20
alpha-BHC	1.97	2.14		ug/L		109	70 - 130	4	20

QC Sample Results

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

Job ID: 380-34938-1

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

Lab Sample ID: LCSD 380-30258/4-A
Matrix: Water
Analysis Batch: 30320

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 30258

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	RPD Limit
							Limits	RPD		
alpha-Chlordane	1.97	2.00		ug/L		101	70 - 130	2	20	
Anthracene	1.97	1.84		ug/L		93	70 - 130	0	20	
Atrazine	1.97	2.17		ug/L		110	70 - 130	0	20	
Benz(a)anthracene	1.97	2.17		ug/L		110	70 - 130	0	20	
Benzo[a]pyrene	1.97	2.06		ug/L		105	70 - 130	4	20	
Benzo[b]fluoranthene	1.97	2.15		ug/L		109	70 - 130	4	20	
Benzo[g,h,i]perylene	1.97	1.99		ug/L		101	70 - 130	3	20	
Benzo[k]fluoranthene	1.97	2.09		ug/L		106	70 - 130	0	20	
beta-BHC	1.97	2.14		ug/L		109	70 - 130	1	20	
Bromacil	1.97	2.35		ug/L		119	70 - 130	1	20	
Butachlor	1.97	2.32		ug/L		118	70 - 130	0	20	
Butylbenzylphthalate	1.97	2.37		ug/L		120	70 - 130	1	20	
Caffeine	1.97	1.78		ug/L		91	45 - 137	2	20	
Chlorobenzilate	1.97	2.29		ug/L		116	70 - 130	1	20	
Chloroneb	1.97	1.94		ug/L		99	70 - 130	1	20	
Chlorothalonil (Draconil, Bravo)	1.97	2.22		ug/L		113	70 - 130	1	20	
Chlorpyrifos	1.97	2.27		ug/L		116	70 - 130	1	20	
Chrysene	1.97	2.01		ug/L		102	70 - 130	1	20	
delta-BHC	1.97	2.13		ug/L		108	70 - 130	0	20	
Di(2-ethylhexyl)adipate	1.97	2.29		ug/L		116	70 - 130	1	20	
Bis(2-ethylhexyl) phthalate	1.97	1.93		ug/L		98	70 - 130	0	20	
Diazinon (Qualitative)	1.97	2.03		ug/L		103	15 - 132	0	20	
Dibenz(a,h)anthracene	1.97	2.04		ug/L		103	70 - 130	3	20	
Diclorvos (DDVP)	1.97	2.01		ug/L		102	70 - 130	2	20	
Dieldrin	1.97	2.27		ug/L		115	70 - 130	0	20	
Diethylphthalate	1.97	1.94		ug/L		99	70 - 130	1	20	
Dimethoate	1.97	1.55		ug/L		79	35 - 100	4	20	
Dimethylphthalate	1.97	1.94		ug/L		99	70 - 130	4	20	
Di-n-butyl phthalate	3.94	4.36		ug/L		111	70 - 130	1	20	
Di-n-octyl phthalate	1.97	1.87		ug/L		95	70 - 130	1	20	
Endosulfan I (Alpha)	1.97	1.98		ug/L		101	70 - 130	1	20	
Endosulfan II (Beta)	1.97	2.32		ug/L		118	70 - 130	2	20	
Endosulfan sulfate	1.97	2.56		ug/L		130	70 - 130	2	20	
Endrin	1.97	2.56		ug/L		130	70 - 130	0	20	
Endrin aldehyde	1.97	1.90		ug/L		97	70 - 130	5	20	
EPTC	1.97	2.17		ug/L		110	70 - 130	5	20	
Fluoranthene	1.97	2.05		ug/L		104	70 - 130	1	20	
Fluorene	1.97	1.92		ug/L		98	70 - 130	3	20	
gamma-Chlordane	1.97	1.89		ug/L		96	70 - 130	1	20	
Heptachlor	1.97	2.21		ug/L		112	70 - 130	0	20	
Heptachlor epoxide (isomer B)	1.97	1.98		ug/L		101	70 - 130	1	20	
Hexachlorobenzene	1.97	1.94		ug/L		98	70 - 130	0	20	
Hexachlorocyclopentadiene	1.97	2.00		ug/L		102	70 - 130	2	20	
Indeno[1,2,3-cd]pyrene	1.97	2.03		ug/L		103	70 - 130	2	20	
Isophorone	1.97	1.89		ug/L		96	70 - 130	7	20	
Lindane	1.97	2.07		ug/L		105	70 - 130	0	20	
Malathion	1.97	2.26		ug/L		115	70 - 130	0	20	
Methoxychlor	1.97	2.45		ug/L		125	70 - 130	3	20	
Metolachlor	1.97	2.29		ug/L		116	70 - 130	1	20	

Eurofins Drinking Water Testing Pomona

QC Sample Results

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

Job ID: 380-34938-1

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

Lab Sample ID: LCSD 380-30258/4-A
Matrix: Water
Analysis Batch: 30320

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 30258

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Metribuzin	1.97	2.22		ug/L		113	70 - 130	1	20
Molinate	1.97	2.15		ug/L		109	70 - 130	3	20
Naphthalene	1.97	1.84		ug/L		94	70 - 130	2	20
Parathion	1.97	2.19		ug/L		111	70 - 130	2	20
Pendimethalin (Penoxaline)	1.97	2.25		ug/L		114	70 - 130	0	20
Phenanthrene	1.97	1.85		ug/L		94	70 - 130	1	20
Propachlor	1.97	2.12		ug/L		108	70 - 130	2	20
Pyrene	1.97	2.06		ug/L		105	70 - 130	2	20
Simazine	1.97	2.25		ug/L		115	70 - 130	1	20
Terbacil	1.97	2.19		ug/L		111	70 - 130	2	20
Terbutylazine	1.97	2.19		ug/L		111	70 - 130	2	20
Thiobencarb	1.97	2.26		ug/L		115	70 - 130	3	20
trans-Nonachlor	1.97	2.10		ug/L		107	70 - 130	2	20
Trifluralin	1.97	2.13		ug/L		108	70 - 130	1	20

Surrogate	LCSD %Recovery	LCSD Qualifier	LCSD Limits
2-Nitro-m-xylene	99		70 - 130
Triphenylphosphate	107		70 - 130
Perylene-d12	97		70 - 130

Lab Sample ID: MRL 380-30258/2-A
Matrix: Water
Analysis Batch: 30320

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 30258

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
2,4'-DDD	0.0984	0.128		ug/L		130	50 - 150
2,4'-DDE	0.0984	0.0953	J	ug/L		97	50 - 150
2,4'-DDT	0.0984	0.0975	J	ug/L		99	50 - 150
2,4-Dinitrotoluene	0.0984	0.0687	J	ug/L		70	50 - 150
2,6-Dinitrotoluene	0.0984	0.0799	J	ug/L		81	50 - 150
4,4'-DDD	0.0984	0.0992		ug/L		101	50 - 150
4,4'-DDE	0.0984	0.111		ug/L		112	50 - 150
4,4'-DDT	0.0984	0.111		ug/L		113	50 - 150
Acenaphthene	0.0984	0.0999		ug/L		102	50 - 150
Acenaphthylene	0.0984	0.0954	J	ug/L		97	50 - 150
Acetochlor	0.0492	0.0490	J	ug/L		100	50 - 150
Alachlor	0.0492	0.0648		ug/L		132	50 - 150
alpha-BHC	0.0984	0.0932	J	ug/L		95	50 - 150
alpha-Chlordane	0.0246	ND		ug/L		108	50 - 150
Anthracene	0.0197	ND		ug/L		89	50 - 150
Atrazine	0.0492	0.0488	J	ug/L		99	50 - 150
Benz(a)anthracene	0.0492	0.0518		ug/L		105	50 - 150
Benzo[a]pyrene	0.0197	0.0164	J	ug/L		83	50 - 150
Benzo[b]fluoranthene	0.0197	0.0186	J	ug/L		95	50 - 150
Benzo[g,h,i]perylene	0.0492	0.0498		ug/L		101	50 - 150
Benzo[k]fluoranthene	0.0197	0.0176	J	ug/L		89	50 - 150
beta-BHC	0.0984	0.0990		ug/L		101	50 - 150
Bromacil	0.0984	0.114		ug/L		116	50 - 150

QC Sample Results

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

Job ID: 380-34938-1

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

Lab Sample ID: MRL 380-30258/2-A
Matrix: Water
Analysis Batch: 30320

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 30258

Analyte	Spike Added	MRL	MRL	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Butachlor	0.0492	0.0628		ug/L		128	50 - 150
Butylbenzylphthalate	0.148	0.204	J	ug/L		138	50 - 150
Caffeine	0.0492	0.0435	J	ug/L		88	50 - 150
Chlorobenzilate	0.0984	0.145		ug/L		147	50 - 150
Chloroneb	0.0984	0.108		ug/L		110	50 - 150
Chlorothalonil (Draconil, Bravo)	0.0984	0.146		ug/L		148	50 - 150
Chlorpyrifos	0.0492	0.0542		ug/L		110	50 - 150
Chrysene	0.0197	0.0206		ug/L		105	50 - 150
delta-BHC	0.0984	0.118		ug/L		120	50 - 150
Di(2-ethylhexyl)adipate	0.295	0.472	J ^3+	ug/L		160	50 - 150
Bis(2-ethylhexyl) phthalate	0.591	0.695		ug/L		118	50 - 150
Diazinon (Qualitative)	0.0984	0.110		ug/L		112	15 - 132
Dibenz(a,h)anthracene	0.0492	0.0547		ug/L		111	50 - 150
Diclorvos (DDVP)	0.0492	0.0574		ug/L		117	50 - 150
Dieldrin	0.0984	0.105	J	ug/L		107	50 - 150
Diethylphthalate	0.148	0.168	J	ug/L		114	50 - 150
Dimethoate	0.0984	0.0710	J	ug/L		72	35 - 100
Dimethylphthalate	0.295	0.261	J	ug/L		89	50 - 150
Di-n-butyl phthalate	0.295	0.344	J	ug/L		117	49 - 243
Di-n-octyl phthalate	0.0984	0.123		ug/L		125	50 - 150
Endosulfan I (Alpha)	0.0984	0.0890	J	ug/L		90	50 - 150
Endosulfan II (Beta)	0.0984	0.137		ug/L		139	50 - 150
Endosulfan sulfate	0.0984	0.0840	J	ug/L		85	50 - 150
Endrin	0.0984	0.145		ug/L		147	50 - 150
Endrin aldehyde	0.0984	0.172	^3+	ug/L		174	50 - 150
EPTC	0.0984	0.114		ug/L		116	50 - 150
Fluoranthene	0.0492	0.0481	J	ug/L		98	50 - 150
Fluorene	0.0492	ND		ug/L		88	50 - 150
gamma-Chlordane	0.0246	0.0374	J ^3+	ug/L		152	50 - 150
Heptachlor	0.0394	0.0445		ug/L		113	50 - 150
Heptachlor epoxide (isomer B)	0.0492	0.0864	^3+	ug/L		176	50 - 150
Hexachlorobenzene	0.0492	0.0451	J	ug/L		92	50 - 150
Hexachlorocyclopentadiene	0.0492	0.0402	J	ug/L		82	50 - 150
Indeno[1,2,3-cd]pyrene	0.0492	0.0491		ug/L		100	50 - 150
Isophorone	0.0984	0.0936	J	ug/L		95	50 - 150
Lindane	0.0394	0.0375	J	ug/L		95	50 - 150
Malathion	0.0984	0.105		ug/L		106	50 - 150
Methoxychlor	0.0984	0.0930	J	ug/L		95	50 - 150
Metolachlor	0.0492	0.0607		ug/L		123	50 - 150
Metribuzin	0.0492	0.0678		ug/L		138	50 - 150
Molinate	0.0984	0.108		ug/L		110	50 - 150
Naphthalene	0.0984	0.109	J	ug/L		111	50 - 150
Parathion	0.0984	0.137		ug/L		140	50 - 150
Pendimethalin (Penoxaline)	0.0984	0.102		ug/L		104	50 - 150
Phenanthrene	0.0197	0.0197	J	ug/L		100	50 - 150
Propachlor	0.0492	0.0519		ug/L		105	50 - 150
Pyrene	0.0492	0.0493		ug/L		100	50 - 150
Simazine	0.0492	0.0512		ug/L		104	50 - 150
Terbacil	0.0984	0.117		ug/L		119	50 - 150

Eurofins Drinking Water Testing Pomona

QC Sample Results

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

Job ID: 380-34938-1

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

Lab Sample ID: MRL 380-30258/2-A
Matrix: Water
Analysis Batch: 30320

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 30258

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Terbutylazine	0.0984	0.0941	J	ug/L		96	50 - 150
Thiobencarb	0.0984	0.114	J	ug/L		116	50 - 150
trans-Nonachlor	0.0246	ND		ug/L		82	50 - 150
Trifluralin	0.0984	0.0944	J	ug/L		96	50 - 150

Surrogate	MRL %Recovery	MRL Qualifier	Limits
2-Nitro-m-xylene	100		70 - 130
Triphenylphosphate	109		70 - 130
Perylene-d12	91		70 - 130

Lab Sample ID: 380-34654-R-1-A MS
Matrix: Water
Analysis Batch: 30320

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 30258

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
2,4'-DDD	ND		1.98	2.35		ug/L		118	70 - 130
2,4'-DDE	ND		1.98	2.03		ug/L		102	70 - 130
2,4'-DDT	ND		1.98	2.30		ug/L		116	70 - 130
2,4-Dinitrotoluene	ND		1.98	1.84		ug/L		93	70 - 130
2,6-Dinitrotoluene	ND		1.98	1.84		ug/L		93	70 - 130
4,4'-DDD	ND		1.98	2.31		ug/L		116	70 - 130
4,4'-DDE	ND		1.98	2.30		ug/L		116	70 - 130
4,4'-DDT	ND		1.98	2.15		ug/L		109	70 - 130
Acenaphthene	ND		1.98	1.89		ug/L		95	70 - 130
Acenaphthylene	ND		1.98	1.87		ug/L		94	70 - 130
Acetochlor	ND		1.98	2.11		ug/L		106	70 - 130
Alachlor	ND		1.98	2.20		ug/L		111	70 - 130
alpha-BHC	ND		1.98	2.17		ug/L		109	70 - 130
alpha-Chlordane	ND		1.98	2.06		ug/L		102	70 - 130
Anthracene	ND	F1	1.98	1.34	F1	ug/L		68	70 - 130
Atrazine	ND		1.98	2.19		ug/L		110	70 - 130
Benz(a)anthracene	ND		1.98	2.13		ug/L		107	70 - 130
Benzo[a]pyrene	ND		1.98	1.88		ug/L		95	70 - 130
Benzo[b]fluoranthene	ND		1.98	2.11		ug/L		107	70 - 130
Benzo[g,h,i]perylene	ND		1.98	2.11		ug/L		106	70 - 130
Benzo[k]fluoranthene	ND		1.98	2.18		ug/L		110	70 - 130
beta-BHC	ND		1.98	2.16		ug/L		109	70 - 130
Bromacil	ND		1.98	2.51		ug/L		127	70 - 130
Butachlor	ND		1.98	2.35		ug/L		119	70 - 130
Butylbenzylphthalate	ND		1.98	2.41		ug/L		121	70 - 130
Caffeine	ND		1.98	1.76		ug/L		89	46 - 144
Chlorobenzilate	ND		1.98	2.32		ug/L		117	70 - 130
Chloroneb	ND		1.98	1.95		ug/L		99	70 - 130
Chlorothalonil (Draconil, Bravo)	ND		1.98	2.22		ug/L		112	70 - 130
Chlorpyrifos	ND		1.98	2.29		ug/L		116	70 - 130
Chrysene	ND		1.98	2.06		ug/L		104	70 - 130
delta-BHC	ND		1.98	2.16		ug/L		109	70 - 130
Di(2-ethylhexyl)adipate	ND	^3+	1.98	2.30		ug/L		116	70 - 130

QC Sample Results

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

Job ID: 380-34938-1

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

Lab Sample ID: 380-34654-R-1-A MS
Matrix: Water
Analysis Batch: 30320

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 30258

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier	Added	Result	Qualifier				
Bis(2-ethylhexyl) phthalate	ND		1.98	1.97		ug/L		99	70 - 130
Diazinon (Qualitative)	ND		1.98	2.10		ug/L		106	15 - 132
Dibenz(a,h)anthracene	ND		1.98	2.06		ug/L		104	70 - 130
Diclorvos (DDVP)	ND		1.98	2.04		ug/L		103	70 - 130
Dieldrin	ND		1.98	2.33		ug/L		115	70 - 130
Diethylphthalate	ND		1.98	1.96		ug/L		99	70 - 130
Dimethoate	ND		1.98	1.66		ug/L		84	34 - 111
Dimethylphthalate	ND		1.98	1.98		ug/L		100	70 - 130
Di-n-butyl phthalate	ND		3.96	4.35		ug/L		110	70 - 130
Di-n-octyl phthalate	ND		1.98	1.90		ug/L		96	70 - 130
Endosulfan I (Alpha)	ND		1.98	2.01		ug/L		101	70 - 130
Endosulfan II (Beta)	ND		1.98	2.34		ug/L		118	70 - 130
Endosulfan sulfate	ND	F1	1.98	2.59	F1	ug/L		131	70 - 130
Endrin	ND		1.98	2.55		ug/L		128	70 - 130
Endrin aldehyde	ND	^3+	1.98	1.87		ug/L		94	70 - 130
EPTC	ND		1.98	2.22		ug/L		112	70 - 130
Fluoranthene	ND		1.98	2.06		ug/L		104	70 - 130
Fluorene	ND		1.98	1.96		ug/L		99	70 - 130
gamma-Chlordane	ND	^3+	1.98	1.97		ug/L		97	70 - 130
Heptachlor	ND		1.98	2.20		ug/L		111	70 - 130
Heptachlor epoxide (isomer B)	ND	^3+	1.98	2.09		ug/L		105	70 - 130
Hexachlorobenzene	ND		1.98	1.95		ug/L		98	70 - 130
Hexachlorocyclopentadiene	ND		1.98	2.00		ug/L		101	70 - 130
Indeno[1,2,3-cd]pyrene	ND		1.98	2.09		ug/L		105	70 - 130
Isophorone	ND		1.98	1.87		ug/L		95	70 - 130
Lindane	ND		1.98	2.15		ug/L		109	70 - 130
Malathion	ND		1.98	2.32		ug/L		117	70 - 130
Methoxychlor	ND		1.98	2.49		ug/L		126	70 - 130
Metolachlor	ND		1.98	2.32		ug/L		117	70 - 130
Metribuzin	ND		1.98	2.30		ug/L		116	70 - 130
Molinate	ND		1.98	2.21		ug/L		112	70 - 130
Naphthalene	ND		1.98	1.85		ug/L		94	70 - 130
Parathion	ND		1.98	2.22		ug/L		112	70 - 130
Pendimethalin (Penoxaline)	ND		1.98	2.30		ug/L		116	70 - 130
Phenanthrene	ND		1.98	1.89		ug/L		96	70 - 130
Propachlor	ND		1.98	2.12		ug/L		107	70 - 130
Pyrene	ND		1.98	2.11		ug/L		107	70 - 130
Simazine	ND		1.98	2.28		ug/L		115	70 - 130
Terbacil	ND		1.98	2.24		ug/L		113	70 - 130
Terbutylazine	ND		1.98	2.26		ug/L		114	70 - 130
Thiobencarb	ND		1.98	2.28		ug/L		115	70 - 130
trans-Nonachlor	ND		1.98	2.24		ug/L		113	70 - 130
Trifluralin	ND		1.98	2.18		ug/L		110	70 - 130

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
2-Nitro-m-xylene	100		70 - 130
Triphenylphosphate	108		70 - 130
Perylene-d12	99		70 - 130

QC Sample Results

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

Job ID: 380-34938-1

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

Lab Sample ID: 380-34720-V-2-A DU
Matrix: Water
Analysis Batch: 30320

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 30258

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

QC Sample Results

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

Job ID: 380-34938-1

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

Lab Sample ID: 380-34720-V-2-A DU
Matrix: Water
Analysis Batch: 30320

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 30258

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
EPTC	ND		ND		ug/L		NC	20
Fluoranthene	ND		ND		ug/L		NC	20
Fluorene	ND		ND		ug/L		NC	20
gamma-Chlordane	ND	^3+	ND		ug/L		NC	20
Heptachlor	ND		ND		ug/L		NC	20
Heptachlor epoxide (isomer B)	ND	^3+	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
		DU	DU					
Surrogate	%Recovery	Qualifier	Limits					
2-Nitro-m-xylene	99		70 - 130					
Triphenylphosphate	112		70 - 130					
Perylene-d12	97		70 - 130					

Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water

Lab Sample ID: MBL 380-30629/1-A
Matrix: Water
Analysis Batch: 30837

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 30629

Analyte	MBL	MBL	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 16:39	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 16:39	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 16:39	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 16:39	1

Eurofins Drinking Water Testing Pomona

QC Sample Results

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

Job ID: 380-34938-1

Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water (Continued)

Lab Sample ID: MBL 380-30629/1-A
Matrix: Water
Analysis Batch: 30837

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 30629

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 16:39	1
Perfluorodecanoic acid (PFDA)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 16:39	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 16:39	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 16:39	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 16:39	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 16:39	1
Perfluorononanoic acid (PFNA)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 16:39	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 16:39	1
Perfluorooctanoic acid (PFOA)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 16:39	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 16:39	1
Perfluorobutanoic acid (PFBA)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 16:39	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 16:39	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 16:39	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 16:39	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 16:39	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 16:39	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 16:39	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 16:39	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 16:39	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 16:39	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	ng/L		01/25/23 11:40	01/27/23 16:39	1

Isotope Dilution	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	90		50 - 200	01/25/23 11:40	01/27/23 16:39	1
13C6 PFDA	95		50 - 200	01/25/23 11:40	01/27/23 16:39	1
13C5 PFHxA	99		50 - 200	01/25/23 11:40	01/27/23 16:39	1
13C4 PFHpA	95		50 - 200	01/25/23 11:40	01/27/23 16:39	1
13C8 PFOA	98		50 - 200	01/25/23 11:40	01/27/23 16:39	1
13C9 PFNA	99		50 - 200	01/25/23 11:40	01/27/23 16:39	1
13C7 PFUnA	95		50 - 200	01/25/23 11:40	01/27/23 16:39	1
13C2 PFDoA	99		50 - 200	01/25/23 11:40	01/27/23 16:39	1
13C4 PFBA	98		50 - 200	01/25/23 11:40	01/27/23 16:39	1
13C5 PFPeA	103		50 - 200	01/25/23 11:40	01/27/23 16:39	1
13C3 PFBS	96		50 - 200	01/25/23 11:40	01/27/23 16:39	1
13C3 PFHxS	95		50 - 200	01/25/23 11:40	01/27/23 16:39	1
13C8 PFOS	99		50 - 200	01/25/23 11:40	01/27/23 16:39	1
13C2-4:2-FTS	100		50 - 200	01/25/23 11:40	01/27/23 16:39	1
13C2-6:2-FTS	101		50 - 200	01/25/23 11:40	01/27/23 16:39	1
13C2-8:2-FTS	104		50 - 200	01/25/23 11:40	01/27/23 16:39	1

QC Sample Results

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

Job ID: 380-34938-1

Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water (Continued)

Lab Sample ID: LCS 380-30629/3-A
Matrix: Water
Analysis Batch: 30837

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 30629

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	60.1	56.4		ng/L		94	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	60.1	55.2		ng/L		92	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	60.1	57.1		ng/L		95	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	60.1	54.4		ng/L		90	70 - 130
Perfluorobutanesulfonic acid (PFBS)	60.1	56.8		ng/L		95	70 - 130
Perfluorodecanoic acid (PFDA)	60.1	57.9		ng/L		96	70 - 130
Perfluorododecanoic acid (PFDoA)	60.1	55.7		ng/L		93	70 - 130
Perfluoroheptanoic acid (PFHpA)	60.1	57.9		ng/L		96	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	60.1	57.2		ng/L		95	70 - 130
Perfluorohexanoic acid (PFHxA)	60.1	53.5		ng/L		89	70 - 130
Perfluorononanoic acid (PFNA)	60.1	55.6		ng/L		92	70 - 130
Perfluorooctanesulfonic acid (PFOS)	60.1	55.1		ng/L		92	70 - 130
Perfluorooctanoic acid (PFOA)	60.1	57.0		ng/L		95	70 - 130
Perfluoroundecanoic acid (PFUnA)	60.1	54.7		ng/L		91	70 - 130
Perfluorobutanoic acid (PFBA)	60.1	56.1		ng/L		93	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	60.1	54.4		ng/L		91	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	60.1	59.2		ng/L		99	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	60.1	55.7		ng/L		93	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	60.1	50.8		ng/L		85	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	60.1	55.4		ng/L		92	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	60.1	57.5		ng/L		96	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	60.1	53.8		ng/L		90	70 - 130
Perfluoropentanoic acid (PFPeA)	60.1	53.2		ng/L		88	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	60.1	54.9		ng/L		91	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	60.1	56.0		ng/L		93	70 - 130

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	97		50 - 200
13C6 PFDA	96		50 - 200
13C5 PFHxA	104		50 - 200
13C4 PFHpA	100		50 - 200
13C8 PFOA	97		50 - 200
13C9 PFNA	99		50 - 200

QC Sample Results

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

Job ID: 380-34938-1

Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water (Continued)

Lab Sample ID: LCS 380-30629/3-A
Matrix: Water
Analysis Batch: 30837

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 30629

<i>Isotope Dilution</i>	<i>LCS %Recovery</i>	<i>LCS Qualifier</i>	<i>Limits</i>
13C7 PFUnA	96		50 - 200
13C2 PFDoA	96		50 - 200
13C4 PFBA	103		50 - 200
13C5 PFPeA	105		50 - 200
13C3 PFBS	100		50 - 200
13C3 PFHxS	100		50 - 200
13C8 PFOS	104		50 - 200
13C2-4:2-FTS	105		50 - 200
13C2-6:2-FTS	110		50 - 200
13C2-8:2-FTS	103		50 - 200

Lab Sample ID: LCSD 380-30629/4-A
Matrix: Water
Analysis Batch: 30837

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 30629

<i>Analyte</i>	<i>Spike Added</i>	<i>LCSD Result</i>	<i>LCSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	60.1	58.1		ng/L		97	70 - 130	3	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	60.1	55.7		ng/L		93	70 - 130	1	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	60.1	55.5		ng/L		92	70 - 130	3	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	60.1	59.5		ng/L		99	70 - 130	9	30
Perfluorobutanesulfonic acid (PFBS)	60.1	57.0		ng/L		95	70 - 130	0	30
Perfluorodecanoic acid (PFDA)	60.1	58.3		ng/L		97	70 - 130	1	30
Perfluorododecanoic acid (PFDoA)	60.1	57.3		ng/L		95	70 - 130	3	30
Perfluoroheptanoic acid (PFHpA)	60.1	57.1		ng/L		95	70 - 130	1	30
Perfluorohexanesulfonic acid (PFHxS)	60.1	56.4		ng/L		94	70 - 130	1	30
Perfluorohexanoic acid (PFHxA)	60.1	56.2		ng/L		94	70 - 130	5	30
Perfluorononanoic acid (PFNA)	60.1	56.4		ng/L		94	70 - 130	1	30
Perfluorooctanesulfonic acid (PFOS)	60.1	55.6		ng/L		93	70 - 130	1	30
Perfluorooctanoic acid (PFOA)	60.1	55.5		ng/L		92	70 - 130	3	30
Perfluoroundecanoic acid (PFUnA)	60.1	59.6		ng/L		99	70 - 130	9	30
Perfluorobutanoic acid (PFBA)	60.1	57.8		ng/L		96	70 - 130	3	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	60.1	58.4		ng/L		97	70 - 130	7	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	60.1	58.9		ng/L		98	70 - 130	1	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	60.1	59.4		ng/L		99	70 - 130	7	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	60.1	55.1		ng/L		92	70 - 130	8	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	60.1	53.5		ng/L		89	70 - 130	3	30

Eurofins Drinking Water Testing Pomona

QC Sample Results

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

Job ID: 380-34938-1

Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water (Continued)

Lab Sample ID: LCSD 380-30629/4-A
Matrix: Water
Analysis Batch: 30837

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 30629

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluoro-3-methoxypropanoic acid (PFMPA)	60.1	60.6		ng/L		101	70 - 130	5	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	60.1	54.9		ng/L		91	70 - 130	2	30
Perfluoropentanoic acid (PFPeA)	60.1	57.8		ng/L		96	70 - 130	8	30
Perfluoroheptanesulfonic acid (PFHpS)	60.1	58.0		ng/L		97	70 - 130	6	30
Perfluoropentanesulfonic acid (PFPeS)	60.1	55.0		ng/L		91	70 - 130	2	30

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	LCSD Limits
13C3 HFPO-DA	84		50 - 200
13C6 PFDA	90		50 - 200
13C5 PFHxA	95		50 - 200
13C4 PFHpA	95		50 - 200
13C8 PFOA	95		50 - 200
13C9 PFNA	95		50 - 200
13C7 PFUnA	90		50 - 200
13C2 PFDoA	88		50 - 200
13C4 PFBA	98		50 - 200
13C5 PFPeA	104		50 - 200
13C3 PFBS	95		50 - 200
13C3 PFHxS	93		50 - 200
13C8 PFOS	95		50 - 200
13C2-4:2-FTS	99		50 - 200
13C2-6:2-FTS	100		50 - 200
13C2-8:2-FTS	92		50 - 200

Lab Sample ID: MRL 380-30629/2-A
Matrix: Water
Analysis Batch: 30837

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 30629

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.00	2.27		ng/L		114	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.00	2.23		ng/L		112	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	2.40		ng/L		120	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	2.49		ng/L		124	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.00	2.24		ng/L		112	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	2.47		ng/L		123	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	2.32		ng/L		116	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	2.45		ng/L		122	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.00	2.25		ng/L		113	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	2.30		ng/L		115	50 - 150

Eurofins Drinking Water Testing Pomona

QC Sample Results

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

Job ID: 380-34938-1

Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water (Continued)

Lab Sample ID: MRL 380-30629/2-A
Matrix: Water
Analysis Batch: 30837

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 30629

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorononanoic acid (PFNA)	2.00	2.34		ng/L		117	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.00	2.05		ng/L		102	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	2.51		ng/L		125	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	2.42		ng/L		121	50 - 150
Perfluorobutanoic acid (PFBA)	2.00	2.51		ng/L		125	50 - 150
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	2.00	2.27		ng/L		113	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	2.00	2.44		ng/L		122	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	2.00	2.49		ng/L		124	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.00	2.17		ng/L		108	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	2.00	2.04		ng/L		102	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.00	2.37		ng/L		118	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.00	2.38		ng/L		119	50 - 150
Perfluoropentanoic acid (PFPeA)	2.00	2.46		ng/L		123	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	2.00	2.24		ng/L		112	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	2.00	2.30		ng/L		115	50 - 150

Isotope Dilution	MRL %Recovery	MRL Qualifier	MRL Limits
13C3 HFPO-DA	86		50 - 200
13C6 PFDA	89		50 - 200
13C5 PFHxA	95		50 - 200
13C4 PFHpA	92		50 - 200
13C8 PFOA	92		50 - 200
13C9 PFNA	95		50 - 200
13C7 PFUnA	89		50 - 200
13C2 PFDoA	88		50 - 200
13C4 PFBA	97		50 - 200
13C5 PFPeA	99		50 - 200
13C3 PFBS	96		50 - 200
13C3 PFHxS	91		50 - 200
13C8 PFOS	96		50 - 200
13C2-4:2-FTS	99		50 - 200
13C2-6:2-FTS	97		50 - 200
13C2-8:2-FTS	93		50 - 200

QC Sample Results

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

Job ID: 380-34938-1

Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water (Continued)

Lab Sample ID: 380-34621-A-1-A MS
Matrix: Water
Analysis Batch: 30837

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 30629

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier	Added	Result	Qualifier				
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		60.2	59.2		ng/L		98	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		60.2	57.8		ng/L		96	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		60.2	55.0		ng/L		91	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		60.2	57.1		ng/L		95	70 - 130
Perfluorobutanesulfonic acid (PFBS)	8.0		60.2	62.8		ng/L		91	70 - 130
Perfluorodecanoic acid (PFDA)	ND		60.2	59.3		ng/L		98	70 - 130
Perfluorododecanoic acid (PFDoA)	ND		60.2	57.2		ng/L		95	70 - 130
Perfluoroheptanoic acid (PFHpA)	8.8		60.2	69.3		ng/L		100	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	18		60.2	78.0		ng/L		99	70 - 130
Perfluorohexanoic acid (PFHxA)	14		60.2	69.7		ng/L		93	70 - 130
Perfluorononanoic acid (PFNA)	ND		60.2	57.4		ng/L		94	70 - 130
Perfluorooctanesulfonic acid (PFOS)	35		60.2	92.9		ng/L		95	70 - 130
Perfluorooctanoic acid (PFOA)	12		60.2	68.2		ng/L		94	70 - 130
Perfluoroundecanoic acid (PFUnA)	ND		60.2	56.8		ng/L		94	70 - 130
Perfluorobutanoic acid (PFBA)	7.5		60.2	64.2		ng/L		94	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		60.2	58.2		ng/L		97	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		60.2	57.3		ng/L		95	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		60.2	59.7		ng/L		99	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		60.2	52.1		ng/L		87	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		60.2	56.2		ng/L		93	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		60.2	61.9		ng/L		103	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		60.2	56.2		ng/L		93	70 - 130
Perfluoropentanoic acid (PFPeA)	18		60.2	76.6		ng/L		97	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	ND		60.2	58.6		ng/L		95	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	ND		60.2	60.9		ng/L		99	70 - 130
		MS		MS					
Isotope Dilution		%Recovery	Qualifier	Limits					
13C3 HFPO-DA		75		50 - 200					
13C6 PFDA		84		50 - 200					
13C5 PFHxA		79		50 - 200					
13C4 PFHpA		78		50 - 200					
13C8 PFOA		82		50 - 200					
13C9 PFNA		85		50 - 200					

QC Sample Results

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

Job ID: 380-34938-1

Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water (Continued)

Lab Sample ID: 380-34621-A-1-A MS
Matrix: Water
Analysis Batch: 30837

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 30629

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>MS MS Qualifier</i>	<i>Limits</i>
13C7 PFUnA	88		50 - 200
13C2 PFDoA	86		50 - 200
13C4 PFBA	85		50 - 200
13C5 PFPeA	89		50 - 200
13C3 PFBS	102		50 - 200
13C3 PFHxS	93		50 - 200
13C8 PFOS	98		50 - 200
13C2-4:2-FTS	111		50 - 200
13C2-6:2-FTS	107		50 - 200
13C2-8:2-FTS	96		50 - 200

Lab Sample ID: 380-34621-B-1-A MSD
Matrix: Water
Analysis Batch: 30837

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 30629

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>MSD Result</i>	<i>MSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		60.2	59.2		ng/L		98	70 - 130	0	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		60.2	56.6		ng/L		94	70 - 130	2	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		60.2	52.8		ng/L		88	70 - 130	4	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		60.2	56.9		ng/L		94	70 - 130	0	30
Perfluorobutanesulfonic acid (PFBS)	8.0		60.2	65.7		ng/L		96	70 - 130	5	30
Perfluorodecanoic acid (PFDA)	ND		60.2	58.6		ng/L		97	70 - 130	1	30
Perfluorododecanoic acid (PFDoA)	ND		60.2	55.9		ng/L		93	70 - 130	2	30
Perfluoroheptanoic acid (PFHpA)	8.8		60.2	67.7		ng/L		98	70 - 130	2	30
Perfluorohexanesulfonic acid (PFHxS)	18		60.2	76.4		ng/L		97	70 - 130	2	30
Perfluorohexanoic acid (PFHxA)	14		60.2	70.5		ng/L		94	70 - 130	1	30
Perfluorononanoic acid (PFNA)	ND		60.2	56.5		ng/L		92	70 - 130	2	30
Perfluorooctanesulfonic acid (PFOS)	35		60.2	93.2		ng/L		96	70 - 130	0	30
Perfluorooctanoic acid (PFOA)	12		60.2	67.3		ng/L		92	70 - 130	1	30
Perfluoroundecanoic acid (PFUnA)	ND		60.2	57.1		ng/L		95	70 - 130	1	30
Perfluorobutanoic acid (PFBA)	7.5		60.2	64.7		ng/L		95	70 - 130	1	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		60.2	55.1		ng/L		91	70 - 130	5	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		60.2	57.0		ng/L		95	70 - 130	0	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		60.2	57.6		ng/L		96	70 - 130	4	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		60.2	54.4		ng/L		90	70 - 130	4	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	ND		60.2	56.6		ng/L		94	70 - 130	1	30

QC Sample Results

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

Job ID: 380-34938-1

Method: 533 - Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water (Continued)

Lab Sample ID: 380-34621-B-1-A MSD
Matrix: Water
Analysis Batch: 30837

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 30629

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		60.2	62.9		ng/L		104	70 - 130	2	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		60.2	54.2		ng/L		90	70 - 130	4	30
Perfluoropentanoic acid (PFPeA)	18		60.2	74.3		ng/L		93	70 - 130	3	30
Perfluoroheptanesulfonic acid (PFHpS)	ND		60.2	58.6		ng/L		95	70 - 130	0	30
Perfluoropentanesulfonic acid (PFPeS)	ND		60.2	59.3		ng/L		96	70 - 130	3	30
		MSD	MSD								
Isotope Dilution		%Recovery	Qualifier	Limits							
13C3 HFPO-DA		80		50 - 200							
13C6 PFDA		87		50 - 200							
13C5 PFHxA		85		50 - 200							
13C4 PFHpA		88		50 - 200							
13C8 PFOA		88		50 - 200							
13C9 PFNA		88		50 - 200							
13C7 PFUnA		89		50 - 200							
13C2 PFDoA		85		50 - 200							
13C4 PFBA		86		50 - 200							
13C5 PFPeA		98		50 - 200							
13C3 PFBS		89		50 - 200							
13C3 PFHxS		86		50 - 200							
13C8 PFOS		89		50 - 200							
13C2-4:2-FTS		101		50 - 200							
13C2-6:2-FTS		96		50 - 200							
13C2-8:2-FTS		92		50 - 200							

Method: 537.1 - Perfluorinated Alkyl Acids (LC/MS)

Lab Sample ID: MBL 380-30259/19-A
Matrix: Water
Analysis Batch: 30434

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 30259

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 12:49	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 12:49	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 12:49	1
N-methylperfluorooctanesulfonamide acetic acid (NMeFOSAA)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 12:49	1
N-ethylperfluorooctanesulfonamide acetic acid (NEtFOSAA)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 12:49	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 12:49	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 12:49	1
Perfluorooctanoic acid (PFOA)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 12:49	1
Perfluorodecanoic acid (PFDA)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 12:49	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 12:49	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 12:49	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 12:49	1
Perfluorononanoic acid (PFNA)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 12:49	1

Eurofins Drinking Water Testing Pomona

QC Sample Results

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

Job ID: 380-34938-1

Method: 537.1 - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Lab Sample ID: MBL 380-30259/19-A
Matrix: Water
Analysis Batch: 30434

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 30259

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorotetradecanoic acid (PFTA)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 12:49	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 12:49	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 12:49	1
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 12:49	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	ng/L		01/20/23 07:15	01/23/23 12:49	1

Surrogate	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	100		70 - 130	01/20/23 07:15	01/23/23 12:49	1
13C2 PFHxA	115		70 - 130	01/20/23 07:15	01/23/23 12:49	1
13C2 PFDA	108		70 - 130	01/20/23 07:15	01/23/23 12:49	1
13C3-GenX	110		70 - 130	01/20/23 07:15	01/23/23 12:49	1

Lab Sample ID: LCS 380-30259/21-A
Matrix: Water
Analysis Batch: 30434

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 30259

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	50.1	51.6		ng/L		103	70 - 130
Perfluorooctanesulfonic acid (PFOS)	46.4	46.7		ng/L		101	70 - 130
Perfluoroundecanoic acid (PFUnA)	50.1	49.2		ng/L		98	70 - 130
N-methylperfluorooctanesulfonamide-1,1-diacetic acid (NMeFOSAA)	50.1	47.6		ng/L		95	70 - 130
N-ethylperfluorooctanesulfonamide-1,1-diacetic acid (NEtFOSAA)	50.1	45.6		ng/L		91	70 - 130
Perfluorohexanoic acid (PFHxA)	50.1	52.9		ng/L		106	70 - 130
Perfluorododecanoic acid (PFDoA)	50.1	50.5		ng/L		101	70 - 130
Perfluorooctanoic acid (PFOA)	50.1	53.1		ng/L		106	70 - 130
Perfluorodecanoic acid (PFDA)	50.1	50.8		ng/L		101	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	45.7	49.5		ng/L		108	70 - 130
Perfluorobutanesulfonic acid (PFBS)	44.3	46.9		ng/L		106	70 - 130
Perfluoroheptanoic acid (PFHpA)	50.1	51.3		ng/L		102	70 - 130
Perfluorononanoic acid (PFNA)	50.1	53.5		ng/L		107	70 - 130
Perfluorotetradecanoic acid (PFTA)	50.1	50.4		ng/L		101	70 - 130
Perfluorotridecanoic acid (PFTrDA)	50.1	51.9		ng/L		104	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	46.8	49.2		ng/L		105	70 - 130
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	47.3	50.0		ng/L		106	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	47.3	48.8		ng/L		103	70 - 130

Eurofins Drinking Water Testing Pomona

QC Sample Results

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

Job ID: 380-34938-1

Method: 537.1 - Perfluorinated Alkyl Acids (LC/MS) (Continued)

<i>Surrogate</i>	<i>LCS LCS</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
<i>d5-NEtFOSAA</i>	89		70 - 130
<i>13C2 PFHxA</i>	111		70 - 130
<i>13C2 PFDA</i>	104		70 - 130
<i>13C3-GenX</i>	108		70 - 130

Lab Sample ID: LCSD 380-30259/22-A
Matrix: Water
Analysis Batch: 30434

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 30259

<i>Analyte</i>	<i>Spike Added</i>	<i>LCSD Result</i>	<i>LCSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec</i>		<i>RPD</i>	<i>Limit</i>
							<i>Limits</i>	<i>RPD</i>		
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	50.0	50.1		ng/L		100	70 - 130	3	30	
Perfluorooctanesulfonic acid (PFOS)	46.3	45.2		ng/L		98	70 - 130	3	30	
Perfluoroundecanoic acid (PFUnA)	50.0	47.4		ng/L		95	70 - 130	4	30	
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	50.0	46.4		ng/L		93	70 - 130	2	30	
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	50.0	43.7		ng/L		87	70 - 130	4	30	
Perfluorohexanoic acid (PFHxA)	50.0	54.7		ng/L		109	70 - 130	3	30	
Perfluorododecanoic acid (PFDoA)	50.0	50.5		ng/L		101	70 - 130	0	30	
Perfluorooctanoic acid (PFOA)	50.0	51.9		ng/L		104	70 - 130	2	30	
Perfluorodecanoic acid (PFDA)	50.0	49.9		ng/L		100	70 - 130	2	30	
Perfluorohexanesulfonic acid (PFHxS)	45.6	48.6		ng/L		107	70 - 130	2	30	
Perfluorobutanesulfonic acid (PFBS)	44.3	49.5		ng/L		112	70 - 130	5	30	
Perfluoroheptanoic acid (PFHpA)	50.0	52.5		ng/L		105	70 - 130	2	30	
Perfluorononanoic acid (PFNA)	50.0	51.7		ng/L		103	70 - 130	3	30	
Perfluorotetradecanoic acid (PFTA)	50.0	49.7		ng/L		99	70 - 130	1	30	
Perfluorotridecanoic acid (PFTrDA)	50.0	50.9		ng/L		102	70 - 130	2	30	
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	46.8	45.8		ng/L		98	70 - 130	7	30	
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	47.3	48.4		ng/L		102	70 - 130	3	30	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	47.3	47.1		ng/L		100	70 - 130	3	30	

<i>Surrogate</i>	<i>LCSD LCSD</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
<i>d5-NEtFOSAA</i>	94		70 - 130
<i>13C2 PFHxA</i>	114		70 - 130
<i>13C2 PFDA</i>	106		70 - 130
<i>13C3-GenX</i>	116		70 - 130

QC Sample Results

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

Job ID: 380-34938-1

Method: 537.1 - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Lab Sample ID: MRL 380-30259/20-A
Matrix: Water
Analysis Batch: 30434

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 30259

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.01	2.29		ng/L		114	50 - 150
Perfluorooctanesulfonic acid (PFOS)	1.86	2.08		ng/L		112	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.01	2.06		ng/L		103	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.01	2.02		ng/L		101	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.01	1.95	J	ng/L		97	50 - 150
Perfluorohexanoic acid (PFHxA)	2.01	2.44		ng/L		121	50 - 150
Perfluorododecanoic acid (PFDoA)	2.01	2.28		ng/L		114	50 - 150
Perfluorooctanoic acid (PFOA)	2.01	2.41		ng/L		120	50 - 150
Perfluorodecanoic acid (PFDA)	2.01	2.40		ng/L		120	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	1.83	2.06		ng/L		112	50 - 150
Perfluorobutanesulfonic acid (PFBS)	1.78	2.01		ng/L		113	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.01	2.37		ng/L		118	50 - 150
Perfluorononanoic acid (PFNA)	2.01	2.32		ng/L		115	50 - 150
Perfluorotetradecanoic acid (PFTA)	2.01	2.23		ng/L		111	50 - 150
Perfluorotridecanoic acid (PFTrDA)	2.01	2.29		ng/L		114	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	1.88	2.09		ng/L		111	50 - 150
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	1.90	2.06		ng/L		108	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.90	2.16		ng/L		114	50 - 150

Surrogate	MRL %Recovery	MRL Qualifier	MRL Limits
d5-NEtFOSAA	91		70 - 130
13C2 PFHxA	110		70 - 130
13C2 PFDA	102		70 - 130
13C3-GenX	103		70 - 130

Lab Sample ID: 380-34734-B-1-A MS
Matrix: Water
Analysis Batch: 30434

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 30259

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		25.0	26.8		ng/L		107	70 - 130
Perfluorooctanesulfonic acid (PFOS)	6.9		23.2	30.0		ng/L		100	70 - 130
Perfluoroundecanoic acid (PFUnA)	ND		25.0	24.2		ng/L		97	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		25.0	24.4		ng/L		98	70 - 130

Eurofins Drinking Water Testing Pomona

QC Sample Results

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

Job ID: 380-34938-1

Method: 537.1 - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Lab Sample ID: 380-34734-B-1-A MS

Matrix: Water

Analysis Batch: 30434

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 30259

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		25.0	23.4		ng/L		94	70 - 130
Perfluorohexanoic acid (PFHxA)	2.4		25.0	28.6		ng/L		105	70 - 130
Perfluorododecanoic acid (PFDoA)	ND		25.0	25.9		ng/L		104	70 - 130
Perfluorooctanoic acid (PFOA)	5.2		25.0	31.8		ng/L		106	70 - 130
Perfluorodecanoic acid (PFDA)	ND		25.0	25.9		ng/L		103	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	4.3		22.8	29.4		ng/L		110	70 - 130
Perfluorobutanesulfonic acid (PFBS)	ND		22.1	26.0		ng/L		113	70 - 130
Perfluoroheptanoic acid (PFHpA)	ND		25.0	29.4		ng/L		111	70 - 130
Perfluorononanoic acid (PFNA)	ND		25.0	27.8		ng/L		108	70 - 130
Perfluorotetradecanoic acid (PFTA)	ND		25.0	26.4		ng/L		106	70 - 130
Perfluorotridecanoic acid (PFTTrDA)	ND		25.0	26.5		ng/L		106	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		23.4	24.8		ng/L		106	70 - 130
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		23.6	25.7		ng/L		109	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		23.6	25.4		ng/L		108	70 - 130

Surrogate	MS %Recovery	MS Qualifier	MS Limits
d5-NEtFOSAA	91		70 - 130
13C2 PFHxA	110		70 - 130
13C2 PFDA	99		70 - 130
13C3-GenX	106		70 - 130

Lab Sample ID: 380-34734-C-1-A MSD

Matrix: Water

Analysis Batch: 30434

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 30259

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		25.1	27.4		ng/L		109	70 - 130	2	30
Perfluorooctanesulfonic acid (PFOS)	6.9		23.2	30.9		ng/L		103	70 - 130	3	30
Perfluoroundecanoic acid (PFUnA)	ND		25.1	24.9		ng/L		99	70 - 130	3	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		25.1	23.8		ng/L		95	70 - 130	3	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		25.1	23.2		ng/L		92	70 - 130	1	30
Perfluorohexanoic acid (PFHxA)	2.4		25.1	30.3		ng/L		111	70 - 130	6	30
Perfluorododecanoic acid (PFDoA)	ND		25.1	27.1		ng/L		108	70 - 130	4	30
Perfluorooctanoic acid (PFOA)	5.2		25.1	33.0		ng/L		111	70 - 130	4	30
Perfluorodecanoic acid (PFDA)	ND		25.1	26.8		ng/L		107	70 - 130	4	30

Eurofins Drinking Water Testing Pomona

QC Sample Results

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

Job ID: 380-34938-1

Method: 537.1 - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Lab Sample ID: 380-34734-C-1-A MSD

Matrix: Water

Analysis Batch: 30434

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 30259

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorohexanesulfonic acid (PFHxS)	4.3		22.9	29.8		ng/L		111	70 - 130	1	30
Perfluorobutanesulfonic acid (PFBS)	ND		22.2	25.1		ng/L		109	70 - 130	4	30
Perfluoroheptanoic acid (PFHpA)	ND		25.1	28.7		ng/L		108	70 - 130	2	30
Perfluorononanoic acid (PFNA)	ND		25.1	28.2		ng/L		109	70 - 130	1	30
Perfluorotetradecanoic acid (PFTA)	ND		25.1	27.6		ng/L		110	70 - 130	5	30
Perfluorotridecanoic acid (PFTTrDA)	ND		25.1	26.9		ng/L		107	70 - 130	2	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		23.5	25.1		ng/L		107	70 - 130	1	30
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		23.7	26.7		ng/L		112	70 - 130	4	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		23.7	25.8		ng/L		109	70 - 130	1	30
			<i>MSD</i>	<i>MSD</i>							
<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>								
d5-NEtFOSAA	90		70 - 130								
13C2 PFHxA	114		70 - 130								
13C2 PFDA	103		70 - 130								
13C3-GenX	110		70 - 130								

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

Lab Sample ID: 103753-B1

Matrix: BlankMatrix

Analysis Batch: O-40112

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: O-40112_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		0.005	0.001	µg/L		01/19/23 00:00	02/11/23 19:29	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		01/19/23 00:00	02/11/23 19:29	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		01/19/23 00:00	02/11/23 19:29	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		01/19/23 00:00	02/11/23 19:29	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		01/19/23 00:00	02/11/23 19:29	1
Acenaphthene	ND		0.005	0.001	µg/L		01/19/23 00:00	02/11/23 19:29	1
Acenaphthylene	ND		0.005	0.001	µg/L		01/19/23 00:00	02/11/23 19:29	1
Anthracene	ND		0.005	0.001	µg/L		01/19/23 00:00	02/11/23 19:29	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		01/19/23 00:00	02/11/23 19:29	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		01/19/23 00:00	02/11/23 19:29	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		01/19/23 00:00	02/11/23 19:29	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		01/19/23 00:00	02/11/23 19:29	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		01/19/23 00:00	02/11/23 19:29	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		01/19/23 00:00	02/11/23 19:29	1
Biphenyl	ND		0.005	0.001	µg/L		01/19/23 00:00	02/11/23 19:29	1
Chrysene	ND		0.005	0.001	µg/L		01/19/23 00:00	02/11/23 19:29	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		01/19/23 00:00	02/11/23 19:29	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		01/19/23 00:00	02/11/23 19:29	1
Dibenzothiophene	ND		0.005	0.001	µg/L		01/19/23 00:00	02/11/23 19:29	1

Euofins Drinking Water Testing Pomona

QC Sample Results

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

Job ID: 380-34938-1

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

Lab Sample ID: 103753-B1
Matrix: BlankMatrix
Analysis Batch: O-40112

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: O-40112_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Disalicylidenepranediamine	ND		0.1	0.05	µg/L		01/19/23 00:00	02/11/23 19:29	1
Fluoranthene	ND		0.005	0.001	µg/L		01/19/23 00:00	02/11/23 19:29	1
Fluorene	ND		0.005	0.001	µg/L		01/19/23 00:00	02/11/23 19:29	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		01/19/23 00:00	02/11/23 19:29	1
Naphthalene	ND		0.005	0.001	µg/L		01/19/23 00:00	02/11/23 19:29	1
Perylene	ND		0.005	0.001	µg/L		01/19/23 00:00	02/11/23 19:29	1
Phenanthrene	ND		0.005	0.001	µg/L		01/19/23 00:00	02/11/23 19:29	1
Pyrene	ND		0.005	0.001	µg/L		01/19/23 00:00	02/11/23 19:29	1
Surrogate	Blank %Recovery	Blank Qualifier	Limits				Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	93		27 - 133				01/19/23 00:00	02/11/23 19:29	1
(d10-Phenanthrene)	94		43 - 129				01/19/23 00:00	02/11/23 19:29	1
(d12-Chrysene)	108		52 - 144				01/19/23 00:00	02/11/23 19:29	1
(d12-Perylene)	91		36 - 161				01/19/23 00:00	02/11/23 19:29	1
(d8-Naphthalene)	88		25 - 125				01/19/23 00:00	02/11/23 19:29	1

Lab Sample ID: 103753-BS1
Matrix: BlankMatrix
Analysis Batch: O-40112

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: O-40112_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1-Methylnaphthalene	0.5	0.478		µg/L		96	31 - 128
1-Methylphenanthrene	0.5	0.479		µg/L		96	66 - 127
2,3,5-Trimethylnaphthalene	0.5	0.496		µg/L		99	55 - 122
2,6-Dimethylnaphthalene	0.5	0.465		µg/L		93	48 - 120
2-Methylnaphthalene	0.5	0.478		µg/L		96	47 - 130
Acenaphthene	0.5	0.486		µg/L		97	53 - 131
Acenaphthylene	0.5	0.46		µg/L		92	43 - 140
Anthracene	0.5	0.476		µg/L		95	58 - 135
Benz[a]anthracene	0.5	0.461		µg/L		92	55 - 145
Benzo[a]pyrene	0.5	0.485		µg/L		97	51 - 143
Benzo[b]fluoranthene	0.5	0.476		µg/L		95	46 - 165
Benzo[e]pyrene	0.5	0.448		µg/L		90	42 - 152
Benzo[g,h,i]perylene	0.5	0.482		µg/L		96	63 - 133
Benzo[k]fluoranthene	0.5	0.463		µg/L		93	56 - 145
Biphenyl	0.5	0.484		µg/L		97	56 - 119
Chrysene	0.5	0.447		µg/L		89	56 - 141
Dibenz[a,h]anthracene	0.5	0.503		µg/L		101	55 - 150
Dibenzo[a,l]pyrene	0.5	0.463		µg/L		93	50 - 150
Dibenzothiophene	0.5	0.47		µg/L		94	46 - 126
Disalicylidenepranediamine	50	42.2		µg/L		84	50 - 150
Fluoranthene	0.5	0.472		µg/L		94	60 - 146
Fluorene	0.5	0.485		µg/L		97	58 - 131
Indeno[1,2,3-cd]pyrene	0.5	0.485		µg/L		97	50 - 151
Naphthalene	0.5	0.441		µg/L		88	41 - 126
Perylene	0.5	0.476		µg/L		95	48 - 141
Phenanthrene	0.5	0.472		µg/L		94	67 - 127
Pyrene	0.5	0.472		µg/L		94	54 - 156

QC Sample Results

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

Job ID: 380-34938-1

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

Lab Sample ID: 103753-BS1
Matrix: BlankMatrix
Analysis Batch: O-40112

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: O-40112_P

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
(d10-Acenaphthene)	96		27 - 133
(d10-Phenanthrene)	93		43 - 129
(d12-Chrysene)	96		52 - 144
(d12-Perylene)	93		36 - 161
(d8-Naphthalene)	85		25 - 125

Lab Sample ID: 103753-BS2
Matrix: BlankMatrix
Analysis Batch: O-40112

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: O-40112_P

Analyte	Spike Added	LCS DUP Result	LCS DUP Qualifier	Unit	D	%Rec	%Rec		RPD	
							Limits	RPD	Limit	Limit
1-Methylnaphthalene	0.5	0.456		µg/L		91	31 - 128	5	30	
1-Methylphenanthrene	0.5	0.466		µg/L		93	66 - 127	3	30	
2,3,5-Trimethylnaphthalene	0.5	0.482		µg/L		96	55 - 122	3	30	
2,6-Dimethylnaphthalene	0.5	0.461		µg/L		92	48 - 120	1	30	
2-Methylnaphthalene	0.5	0.458		µg/L		92	47 - 130	4	30	
Acenaphthene	0.5	0.472		µg/L		94	53 - 131	3	30	
Acenaphthylene	0.5	0.463		µg/L		93	43 - 140	1	30	
Anthracene	0.5	0.467		µg/L		93	58 - 135	2	30	
Benz[a]anthracene	0.5	0.452		µg/L		90	55 - 145	2	30	
Benzo[a]pyrene	0.5	0.492		µg/L		98	51 - 143	1	30	
Benzo[b]fluoranthene	0.5	0.483		µg/L		97	46 - 165	2	30	
Benzo[e]pyrene	0.5	0.473		µg/L		95	42 - 152	5	30	
Benzo[g,h,i]perylene	0.5	0.477		µg/L		95	63 - 133	1	30	
Benzo[k]fluoranthene	0.5	0.469		µg/L		94	56 - 145	1	30	
Biphenyl	0.5	0.46		µg/L		92	56 - 119	5	30	
Chrysene	0.5	0.454		µg/L		91	56 - 141	2	30	
Dibenz[a,h]anthracene	0.5	0.482		µg/L		96	55 - 150	5	30	
Dibenzo[a,l]pyrene	0.5	0.491		µg/L		98	50 - 150	5	30	
Dibenzothiophene	0.5	0.477		µg/L		95	46 - 126	1	30	
Disalicylidenepropanediamine	50	47.1		µg/L		94	50 - 150	11	30	
Fluoranthene	0.5	0.458		µg/L		92	60 - 146	2	30	
Fluorene	0.5	0.474		µg/L		95	58 - 131	2	30	
Indeno[1,2,3-cd]pyrene	0.5	0.496		µg/L		99	50 - 151	2	30	
Naphthalene	0.5	0.458		µg/L		92	41 - 126	4	30	
Perylene	0.5	0.465		µg/L		93	48 - 141	2	30	
Phenanthrene	0.5	0.48		µg/L		96	67 - 127	2	30	
Pyrene	0.5	0.462		µg/L		92	54 - 156	2	30	

Surrogate	LCS DUP LCS DUP		Limits
	%Recovery	Qualifier	
(d10-Acenaphthene)	94		27 - 133
(d10-Phenanthrene)	94		43 - 129
(d12-Chrysene)	95		52 - 144
(d12-Perylene)	93		36 - 161
(d8-Naphthalene)	90		25 - 125

QC Sample Results

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

Job ID: 380-34938-1

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

Lab Sample ID: 23VGH7A09B
Matrix: WATER
Analysis Batch: 23VGH7A09

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GASOLINE	ND	U	0.02		mg/L			01/24/23 11:58	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
BROMOFLUOROBENZENE								01/24/23 11:58	1

Lab Sample ID: 23VGH7A09L
Matrix: WATER
Analysis Batch: 23VGH7A09

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
GASOLINE	0.5	0.442		mg/L		88	60 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
BROMOFLUOROBENZENE	113		70 - 130				

Lab Sample ID: 23A218-01M
Matrix: WATER
Analysis Batch: 23VGH7A09

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
GASOLINE	ND		0.5	0.446		mg/L		89	50 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
BROMOFLUOROBENZENE	113		60 - 140						

Lab Sample ID: 23A218-01S
Matrix: WATER
Analysis Batch: 23VGH7A09

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
GASOLINE	ND		0.5	0.471		mg/L		94	50 - 130	5	30
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
BROMOFLUOROBENZENE	118		60 - 140								

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

Lab Sample ID: 23DSA029WB
Matrix: WATER
Analysis Batch: 23DSA029W

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DIESEL	ND	U	0.025		mg/L			01/24/23 18:24	1
JP5	ND	U	0.05		mg/L			01/24/23 18:24	1
JP8	ND	U	0.05		mg/L			01/24/23 18:24	1
MOTOR OIL	ND	U	0.05		mg/L			01/24/23 18:24	1

QC Sample Results

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

Job ID: 380-34938-1

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

Lab Sample ID: 23DSA029WB
Matrix: WATER
Analysis Batch: 23DSA029W

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

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
BROMOBENZENE					01/24/23 18:24	1
HEXACOSANE					01/24/23 18:24	1

Lab Sample ID: 23DSA029WL
Matrix: WATER
Analysis Batch: 23DSA029W

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
BROMOBENZENE	102		60 - 130
HEXACOSANE	115		60 - 130

Lab Sample ID: 23J5A029WL
Matrix: WATER
Analysis Batch: 23DSA029W

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
BROMOBENZENE	103		60 - 130
HEXACOSANE	115		60 - 130

Lab Sample ID: 23J8A029WL
Matrix: WATER
Analysis Batch: 23DSA029W

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
BROMOBENZENE	105		60 - 130
HEXACOSANE	120		60 - 130

QC Association Summary

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

Job ID: 380-34938-1

GC/MS Semi VOA

Prep Batch: 30258

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-34938-1	AIEA WELLS PUMPS 1&2 (260)	Total/NA	Drinking Water	525.2	
MB 380-30258/1-A	Method Blank	Total/NA	Water	525.2	
LCS 380-30258/3-A	Lab Control Sample	Total/NA	Water	525.2	
LCSD 380-30258/4-A	Lab Control Sample Dup	Total/NA	Water	525.2	
MRL 380-30258/2-A	Lab Control Sample	Total/NA	Water	525.2	
380-34654-R-1-A MS	Matrix Spike	Total/NA	Water	525.2	
380-34720-V-2-A DU	Duplicate	Total/NA	Water	525.2	

Analysis Batch: 30320

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-34938-1	AIEA WELLS PUMPS 1&2 (260)	Total/NA	Drinking Water	525.2	30258
MB 380-30258/1-A	Method Blank	Total/NA	Water	525.2	30258
LCS 380-30258/3-A	Lab Control Sample	Total/NA	Water	525.2	30258
LCSD 380-30258/4-A	Lab Control Sample Dup	Total/NA	Water	525.2	30258
MRL 380-30258/2-A	Lab Control Sample	Total/NA	Water	525.2	30258
380-34654-R-1-A MS	Matrix Spike	Total/NA	Water	525.2	30258
380-34720-V-2-A DU	Duplicate	Total/NA	Water	525.2	30258

LCMS

Prep Batch: 30259

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-34938-1	AIEA WELLS PUMPS 1&2 (260)	Total/NA	Drinking Water	537.1 DW	
380-34938-3	FB: AIEA WELLS PUMPS 1&2 (260)	Total/NA	Water	537.1 DW	
MBL 380-30259/19-A	Method Blank	Total/NA	Water	537.1 DW	
LCS 380-30259/21-A	Lab Control Sample	Total/NA	Water	537.1 DW	
LCSD 380-30259/22-A	Lab Control Sample Dup	Total/NA	Water	537.1 DW	
MRL 380-30259/20-A	Lab Control Sample	Total/NA	Water	537.1 DW	
380-34734-B-1-A MS	Matrix Spike	Total/NA	Water	537.1 DW	
380-34734-C-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	537.1 DW	

Analysis Batch: 30434

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-34938-1	AIEA WELLS PUMPS 1&2 (260)	Total/NA	Drinking Water	537.1	30259
380-34938-3	FB: AIEA WELLS PUMPS 1&2 (260)	Total/NA	Water	537.1	30259
MBL 380-30259/19-A	Method Blank	Total/NA	Water	537.1	30259
LCS 380-30259/21-A	Lab Control Sample	Total/NA	Water	537.1	30259
LCSD 380-30259/22-A	Lab Control Sample Dup	Total/NA	Water	537.1	30259
MRL 380-30259/20-A	Lab Control Sample	Total/NA	Water	537.1	30259
380-34734-B-1-A MS	Matrix Spike	Total/NA	Water	537.1	30259
380-34734-C-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	537.1	30259

Prep Batch: 30629

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-34938-1	AIEA WELLS PUMPS 1&2 (260)	Total/NA	Drinking Water	533	
380-34938-3	FB: AIEA WELLS PUMPS 1&2 (260)	Total/NA	Water	533	
MBL 380-30629/1-A	Method Blank	Total/NA	Water	533	
LCS 380-30629/3-A	Lab Control Sample	Total/NA	Water	533	
LCSD 380-30629/4-A	Lab Control Sample Dup	Total/NA	Water	533	
MRL 380-30629/2-A	Lab Control Sample	Total/NA	Water	533	
380-34621-A-1-A MS	Matrix Spike	Total/NA	Water	533	

QC Association Summary

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

Job ID: 380-34938-1

LCMS (Continued)

Prep Batch: 30629 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-34621-B-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	

Analysis Batch: 30837

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-34938-1	AIEA WELLS PUMPS 1&2 (260)	Total/NA	Drinking Water	533	30629
380-34938-3	FB: AIEA WELLS PUMPS 1&2 (260)	Total/NA	Water	533	30629
MBL 380-30629/1-A	Method Blank	Total/NA	Water	533	30629
LCS 380-30629/3-A	Lab Control Sample	Total/NA	Water	533	30629
LCSD 380-30629/4-A	Lab Control Sample Dup	Total/NA	Water	533	30629
MRL 380-30629/2-A	Lab Control Sample	Total/NA	Water	533	30629
380-34621-A-1-A MS	Matrix Spike	Total/NA	Water	533	30629
380-34621-B-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	30629

Subcontract

Analysis Batch: O-40112

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-34938-1	AIEA WELLS PUMPS 1&2 (260)	Total/NA	Drinking Water	625 PAH Physis LL (EAL) + TICs	O-40112_P
103753-B1	Method Blank	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-40112_P
103753-BS1	Lab Control Sample	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-40112_P
103753-BS2	Lab Control Sample Dup	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-40112_P

Analysis Batch: 23DSA029W

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-34938-1	AIEA WELLS PUMPS 1&2 (260)	Total/NA	Drinking Water	8015 LL DRO/MRO/JP5/J P8	
23DSA029WB	Method Blank	Total/NA	WATER	8015 LL DRO/MRO/JP5/J P8	
23DSA029WL	Lab Control Sample	Total/NA	WATER	8015 LL DRO/MRO/JP5/J P8	
23J5A029WL	Lab Control Sample	Total/NA	WATER	8015 LL DRO/MRO/JP5/J P8	
23J8A029WL	Lab Control Sample	Total/NA	WATER	8015 LL DRO/MRO/JP5/J P8	

Analysis Batch: 23VG7A09

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-34938-1	AIEA WELLS PUMPS 1&2 (260)	Total/NA	Drinking Water	8015 Gas (Purgeable) LL (EAL)	
380-34938-2	TB: AIEA WELLS PUMPS 1&2 (260)	Total/NA	Water	8015 Gas (Purgeable) LL (EAL)	
23VG7A09B	Method Blank	Total/NA	WATER	8015 Gas (Purgeable) LL (EAL)	

QC Association Summary

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

Job ID: 380-34938-1

Subcontract (Continued)

Analysis Batch: 23VGH7A09 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
23VGH7A09L	Lab Control Sample	Total/NA	WATER	8015 Gas (Purgeable) LL (EAL)	
23A218-01M	Matrix Spike	Total/NA	WATER	8015 Gas (Purgeable) LL (EAL)	
23A218-01S	Matrix Spike Duplicate	Total/NA	WATER	8015 Gas (Purgeable) LL (EAL)	

Prep Batch: O-40112_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-34938-1	AIEA WELLS PUMPS 1&2 (260)	Total/NA	Drinking Water	EPA_625	
103753-B1	Method Blank	Total/NA	BlankMatrix	EPA_625	
103753-BS1	Lab Control Sample	Total/NA	BlankMatrix	EPA_625	
103753-BS2	Lab Control Sample Dup	Total/NA	BlankMatrix	EPA_625	



Lab Chronicle

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

Job ID: 380-34938-1

Client Sample ID: AIEA WELLS PUMPS 1&2 (260)

Lab Sample ID: 380-34938-1

Date Collected: 01/17/23 09:00

Matrix: Drinking Water

Date Received: 01/19/23 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	525.2			30258	G9MN	EA MON	01/20/23 05:58
Total/NA	Analysis	525.2		1	30320	UPAC	EA MON	01/20/23 22:26
Total/NA	Prep	533			30629	P8ZX	EA MON	01/25/23 11:40
Total/NA	Analysis	533		1	30837	UKYM	EA MON	01/27/23 20:23
Total/NA	Prep	537.1 DW			30259	US1B	EA MON	01/20/23 07:15
Total/NA	Analysis	537.1		1	30434	UKYM	EA MON	01/23/23 13:57
Total/NA	Prep	EPA_625		1	O-40112_P			01/20/23 00:00
Total/NA	Analysis	625 PAH Physis LL (EAL) + TICs		1	O-40112	YC		02/12/23 18:07
Total/NA	Analysis	8015 Gas (Purgeable) LL (EAL)		1	23VGH7A09	SCerva		01/24/23 13:50
Total/NA	Analysis	8015 LL DRO/MRO/JP5/JP8		1	23DSA029W	SDees		01/24/23 23:36

Client Sample ID: TB: AIEA WELLS PUMPS 1&2 (260)

Lab Sample ID: 380-34938-2

Date Collected: 01/17/23 09:00

Matrix: Water

Date Received: 01/19/23 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015 Gas (Purgeable) LL (EAL)		1	23VGH7A09	SCerva		01/24/23 15:42

Client Sample ID: FB: AIEA WELLS PUMPS 1&2 (260)

Lab Sample ID: 380-34938-3

Date Collected: 01/17/23 09:00

Matrix: Water

Date Received: 01/19/23 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			30629	P8ZX	EA MON	01/25/23 11:40
Total/NA	Analysis	533		1	30837	UKYM	EA MON	01/27/23 20:33
Total/NA	Prep	537.1 DW			30259	US1B	EA MON	01/20/23 07:15
Total/NA	Analysis	537.1		1	30434	UKYM	EA MON	01/23/23 14:07

Laboratory References:

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

EA MON = Eurofins Drinking Water Testing Pomona, 941 Corporate Center Drive, Pomona, CA 91768-2642, TEL (626)386-1100

Accreditation/Certification Summary

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

Job ID: 380-34938-1

Laboratory: Eurofins Drinking Water Testing Pomona

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

Authority	Program	Identification Number	Expiration Date
Hawaii	State	CA00006	02-28-23

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

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

Accreditation/Certification Summary

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

Job ID: 380-34938-1

Laboratory: Eurofins Drinking Water Testing Pomona (Continued)

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

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

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

Analysis Method	Prep Method	Matrix	Analyte
525.2	525.2	Drinking Water	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
533	533	Drinking Water	11-Chloroeicosafiuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)
533	533	Drinking Water	1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)
533	533	Drinking Water	1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)
533	533	Drinking Water	1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)
533	533	Drinking Water	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)
533	533	Drinking Water	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)
533	533	Drinking Water	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)
533	533	Drinking Water	Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)
533	533	Drinking Water	Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)
533	533	Drinking Water	Perfluoro-3-methoxypropanoic acid (PFMPA)
533	533	Drinking Water	Perfluoro-4-methoxybutanoic acid (PFMBA)
533	533	Drinking Water	Perfluorobutanoic acid (PFBA)
533	533	Drinking Water	Perfluoroheptanesulfonic acid (PFHpS)
533	533	Drinking Water	Perfluoropentanesulfonic acid (PFPeS)
533	533	Drinking Water	Perfluoropentanoic acid (PFPeA)
533	533	Water	11-Chloroeicosafiuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)
533	533	Water	1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)
533	533	Water	1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)
533	533	Water	1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)
533	533	Water	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)

Accreditation/Certification Summary

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

Job ID: 380-34938-1

Laboratory: Eurofins Drinking Water Testing Pomona (Continued)

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

Authority	Program	Identification Number	Expiration Date
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
<u>Analysis Method</u>	<u>Prep Method</u>	<u>Matrix</u>	<u>Analyte</u>
533	533	Water	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)
533	533	Water	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)
533	533	Water	Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)
533	533	Water	Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)
533	533	Water	Perfluoro-3-methoxypropanoic acid (PFMPA)
533	533	Water	Perfluoro-4-methoxybutanoic acid (PFMBA)
533	533	Water	Perfluorobutanoic acid (PFBA)
533	533	Water	Perfluoroheptanesulfonic acid (PFHpS)
533	533	Water	Perfluoropentanesulfonic acid (PFPeS)
533	533	Water	Perfluoropentanoic acid (PFPeA)
537.1	537.1 DW	Drinking Water	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)
537.1	537.1 DW	Drinking Water	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)
537.1	537.1 DW	Drinking Water	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)
537.1	537.1 DW	Drinking Water	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)
537.1	537.1 DW	Water	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)
537.1	537.1 DW	Water	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)
537.1	537.1 DW	Water	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)
537.1	537.1 DW	Water	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)

Method Summary

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

Job ID: 380-34938-1

Method	Method Description	Protocol	Laboratory
525.2	Semivolatile Organic Compounds (GC/MS)	EPA	EA MON
533	Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water	EPA	EA MON
537.1	Perfluorinated Alkyl Acids (LC/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
533	Extraction of Perfluorinated and Polyfluorinated Alkyl Acids	EPA	EA MON
537.1 DW	Extraction of Perfluorinated Alkyl Acids	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 Drinking Water Testing Pomona, 941 Corporate Center Drive, Pomona, CA 91768-2642, TEL (626)386-1100

Sample Summary

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

Job ID: 380-34938-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	PWSID Number
380-34938-1	AIEA WELLS PUMPS 1&2 (260)	Drinking Water	01/17/23 09:00	01/19/23 10:00	HI0000331
380-34938-2	TB: AIEA WELLS PUMPS 1&2 (260)	Water	01/17/23 09:00	01/19/23 10:00	
380-34938-3	FB: AIEA WELLS PUMPS 1&2 (260)	Water	01/17/23 09:00	01/19/23 10:00	

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18

EMAX
LABORATORIES, INC.
 3051 Fujita Street
 Torrance, CA 90505
 Tel: (310)-618-8889

Date: 02-03-2023
 EMAX Batch No.: 23A218

Attn: Jackie Contreras

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

Subject: Laboratory Report
 Project: 380-34938

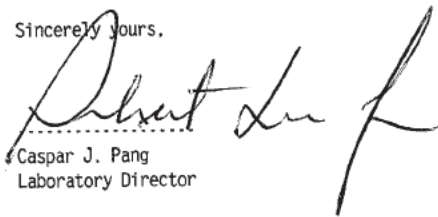
Enclosed is the Laboratory report for samples received on 01/20/23.
 The data reported relate only to samples listed below :

Sample ID	Control #	Co1 Date	Matrix	Analysis
380-34938-1	A218-01	01/17/23	WATER	TPH GASOLINE TPH
380-34938-2	A218-02	01/17/23	WATER	TPH GASOLINE

The results are summarized on the following pages.

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

Sincerely yours,



Caspar J. Pang
 Laboratory Director

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

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

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

Monrovia, CA (Suite 100)

Chain of Custody Record 23A218



750 Royal Oaks Drive Suite 100
Monrovia, CA 91016
Phone: 926-386-1100

Client Information (Sub Contract Lab)

EMAX Laboratories Inc
3051 Fujita Street,
Torrance
CA, 90505

Address:
City:
State, Zip:
Phone:

Due Date Requested:
2/2/2023
TAT Requested (days):

Project Name:
RED-HILL
Site:
Honolulu BWS Sites

Project #:
38001111
SSOW#:

MO #:
PO #:

Lab Pk#:
Arada, Rachelle
E-Mail:
Rachelle.Arada@eurofins.com

Carrier Tracking No(s):
State of Origin:
Hawaii

Accreditations Required (See note):
State - Hawaii

COC No.:
380-3440-1
Page:
Page 1 of 1
Job #:
380-34938-1

Analysis Requested

Field Filtered Sample (Yes or No)
Perform MS/MSD (Yes or No)
SUB (8015 Gas (Purgeable) LL (EAL))/ 8015 Gas (Purgeable) LL (EAL)
SUB (8015 LL DRO/MRO/JP5/JP8)/ 8015 LL DRO/MRO/JP5/JP8

Preservation Codes:
A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Antichlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA
M - Hexane
N - None
O - AsHAc2
P - Na2O/S
Q - Na2SO3
R - NaHSO3
S - H2SO4
T - TSP Dodecyl/drate
U - Acetone
V - MCAA
W - PH-4.5
X - Trizma
Y - EDTA
Z - other (specify)

Sample Identification - Client ID (Lab ID)

Sample ID	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Sewage, Other, etc.)	Preservation Code:	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Total Number of containers	Special Instructions/Note:
AIEA WELLS PUMPS 1&2 (260) (380-34938-1)	1/17/23	09:00	Water	Water			X	6	See Attached Instructions
TB: AIEA WELLS PUMPS 1&2 (260) (380-34938-2)	1/17/23	09:00	Water	Water			X	2	See Attached Instructions

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

Possible Hazard Identification

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

Special Instructions/COC Requirements:

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

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by: <i>AR</i>	Date/Time: 01/20/2023 11:26	Company: <i>CEA</i>	Received by: <i>JOSIE</i>
Relinquished by: <i>JOSIE</i>	Date/Time: 1-20-23 12:50	Company: <i>PCS</i>	Received by: <i>Maria M</i>

Custody Seals Intact: Yes No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks: *TCMP 2 15/11.3 (3) 24/12.2*



REFERENCE: EMAX-SM02 Rev. 12
SAMPLE RECEIPT FORM 1

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>23A218</u> Recipient <u>Maria Rivera</u> Date <u>01/20/23</u> Time <u>12:50</u>
--	---------------------------	--

COC INSPECTION

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

Note: _____

PACKAGING INSPECTION

Container	<input checked="" type="checkbox"/> Cooler	<input type="checkbox"/> Box	<input type="checkbox"/> Other
Condition <u>correction</u>	<input type="checkbox"/> Custody Seal	<input type="checkbox"/> Intact	<input type="checkbox"/> Damaged
Packaging <u>factor: -0.2</u>	<input checked="" type="checkbox"/> Bubble Pack	<input type="checkbox"/> Styrofoam	<input type="checkbox"/> Popcorn
Temperatures (Cool, ≤6 °C but not frozen)	<input type="checkbox"/> Cooler 1 _____ °C	<input checked="" type="checkbox"/> Cooler <u>2, 5/13</u> °C	<input checked="" type="checkbox"/> Cooler <u>3, 4/12</u> °C
<i>Thermometer:</i>	<input type="checkbox"/> Cooler 6 _____ °C	<input type="checkbox"/> Cooler 7 _____ °C	<input type="checkbox"/> Cooler 8 _____ °C
	<input checked="" type="checkbox"/> A-S/N <u>221052760</u>	<input checked="" type="checkbox"/> B-S/N <u>210760237</u>	<input type="checkbox"/> C-S/N _____
			<input type="checkbox"/> D-S/N _____

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

Note: _____

DISCREPANCIES

LabSampleID	LabSampleContainerID	Code	ClientSample Label ID / Information	Corrective Action
<u>2</u>	<u>8</u>	<u>D22</u>	<u>2nd Date/Time reads: 12/5/22 at 8:00</u>	<u>RT</u>
<u>1</u>	<u>5, 6</u>	<u>D1</u>	<u>JPS/JPS - not indicated</u>	<u>↓</u>
<i>[Large diagonal scribble across the table]</i>				

pH holding time requirement for water samples is 15 mins. Water samples for pH analysis are received beyond 15 minutes from sampling time. AS 1/23/23

NOTES/OBSERVATIONS: * out of hlt if collected 12/5/22

SAMPLE MATRIX IS DRINKING WATER? YES NO

LEGEND:

<p>Code Description-Sample Management</p> <p><u>(D1)</u> Analysis is not indicated in <u>label</u></p> <p>D2 Analysis mismatch COC vs label</p> <p>D3 Sample ID mismatch COC vs label</p> <p>D4 Sample ID is not indicated in _____</p> <p>D5 Container -[improper] [leaking] [broken]</p> <p>D6 Date/Time is not indicated in _____</p> <p>D7 Date/Time mismatch COC vs label</p> <p>D8 Sample listed in COC is not received</p> <p>D9 Sample received is not listed in COC</p> <p>D10 No initial/date on corrections in COC/label</p> <p>D11 Container count mismatch COC vs received</p> <p>D12 Container size mismatch COC vs received</p>	<p>Code Description-Sample Management</p> <p>D13 Out of Holding Time</p> <p>D14 Bubble size >6mm</p> <p>D15 No trip blank in cooler</p> <p>D16 Preservation not indicated in _____</p> <p>D17 Preservation mismatch COC vs label</p> <p>D18 Insufficient chemical preservative</p> <p>D19 Insufficient Sample</p> <p>D20 No filtration info for dissolved analysis</p> <p>D21 No sample for moisture determination</p> <p><u>(D22)</u> <u>2nd date/time on label is incorrect</u></p> <p>D23 _____</p> <p>D24 _____</p>	<p><input type="checkbox"/> Continue to next page.</p> <p>Code Description-Sample Management</p> <p>R1 Proceed as indicated in <input checked="" type="checkbox"/> COC <input type="checkbox"/> Label</p> <p>R2 Refer to attached instruction</p> <p>R3 Cancel the analysis</p> <p>R4 Use vial with smallest bubble first</p> <p>R5 Log-in with latest sampling date and time+1 min</p> <p>R6 Adjust pH as necessary</p> <p>R7 Filter and preserved as necessary</p> <p>R8 _____</p> <p>R9 _____</p> <p>R10 _____</p> <p>R11 _____</p> <p>R12 _____</p>
--	--	---

REVIEWS:

Sample Labeling <u>Maria Rivera</u>	<u>Jocelyne Solis-Ramos</u>	SRF <u>Jocelyne Solis-Ramos</u>	PM <u>AS</u>
Date <u>01/20/23</u>	<u>01/20/23</u>	Date <u>01/20/23</u>	Date <u>1/23/23</u>

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

380-34938

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

SDG#: 23A218

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18

CASE NARRATIVE

Client : EUROFINS EATON ANALYTICAL

Project: 380-34938

SDG : 23A218

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

A total of two(2) water samples were received on 01/20/23 to be analyzed for Total Petroleum Hydrocarbons by Purge and Trap in accordance with Method 5030B/8015B and project specific requirements.

Holding Time

Samples were analyzed within the prescribed holding time.

Calibration

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

Method Blank

Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. VGH7A09B - 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. VGH7A09L/VGH7A09C 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 A218-01M/A218-01S. Refer to Matrix QC summary form for details.

Surrogate

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

Sample Analysis

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

LAB CHRONICLE
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client : EUROFINS EATON ANALYTICAL
Project : 380-34938
SDG NO. : 23A218
Instrument ID : H7

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis Date/Time	Extraction Date/Time	Sample Data FN	Calibration Data FN	Prep. Batch	Notes	
				WATER						
MBLK1W	VGH7A09B	1	NA	01/24/2311:58	01/24/2311:58	AA24005A	AA24003A	23VGH7A09	Method Blank	
LCS1W	VGH7A09L	1	NA	01/24/2312:35	01/24/2312:35	AA24006A	AA24003A	23VGH7A09	Lab Control Sample (LCS)	
LCD1W	VGH7A09C	1	NA	01/24/2313:13	01/24/2313:13	AA24007A	AA24003A	23VGH7A09	LCS Duplicate	
380-34938-1	A218-01	1	NA	01/24/2313:50	01/24/2313:50	AA24008A	AA24003A	23VGH7A09	Field Sample	
380-34938-1MS	A218-01M	1	NA	01/24/2314:27	01/24/2314:27	AA24009A	AA24003A	23VGH7A09	Matrix Spike Sample (MS)	
380-34938-1MSD	A218-01S	1	NA	01/24/2315:05	01/24/2315:05	AA24010A	AA24003A	23VGH7A09	MS Duplicate (MSD)	
380-34938-2	A218-02	1	NA	01/24/2315:42	01/24/2315:42	AA24011A	AA24003A	23VGH7A09	Field Sample	

FN - Filename
% Moist - Percent Moisture



1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18

SAMPLE RESULTS

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

Client	: EUROFINS EATON ANALYTICAL	Date Collected:	01/17/23 09:00
Project	: 380-34938	Date Received:	01/20/23
Batch No.	: 23A218	Date Extracted:	01/24/23 13:50
Sample ID	: 380-34938-1	Date Analyzed:	01/24/23 13:50
Lab Samp ID:	A218-01	Dilution Factor:	1
Lab File ID:	AA24008A	Matrix:	WATER
Ext Btch ID:	23VGH7A09	% Moisture:	NA
Calib. Ref.:	AA24003A	Instrument ID:	H7

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

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromofluorobenzene	0.0370	0.0400	93	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:	01/17/23 09:00
Project	: 380-34938	Date Received:	01/20/23
Batch No.	: 23A218	Date Extracted:	01/24/23 15:42
Sample ID	: 380-34938-2	Date Analyzed:	01/24/23 15:42
Lab Samp ID:	A218-02	Dilution Factor:	1
Lab File ID:	AA24011A	Matrix:	WATER
Ext Btch ID:	23VGH7A09	% Moisture:	NA
Calib. Ref.:	AA24003A	Instrument ID:	H7

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

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromofluorobenzene	0.0377	0.0400	94	60-140

Notes:

Parameter H-C Range
Gasoline C6-C10

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

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

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18

QC SUMMARIES

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

Client : EUROFINS EATON ANALYTICAL	Date Collected: 01/24/23 11:58
Project : 380-34938	Date Received: 01/24/23
Batch No. : 23A218	Date Extracted: 01/24/23 11:58
Sample ID : MBLK1W	Date Analyzed: 01/24/23 11:58
Lab Samp ID: VGH7A09B	Dilution Factor: 1
Lab File ID: AA24005A	Matrix: WATER
Ext Btch ID: 23VGH7A09	% Moisture: NA
Calib. Ref.: AA24003A	Instrument ID: H7

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)	
GASOLINE	ND	0.020	0.010	
SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromofluorobenzene	0.0376	0.0400	94	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 : 380-34938
BATCH NO. : 23A218
METHOD : 5030B/8015B

MATRIX : WATER		% MOISTURE:NA
DILUTION FACTOR: 1	1	1
SAMPLE ID : MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID : VGH7A09B	VGH7A09L	VGH7A09C
LAB FILE ID : AA24005A	AA24006A	AA24007A
DATE PREPARED : 01/24/23 11:58	01/24/23 12:35	01/24/23 13:13
DATE ANALYZED : 01/24/23 11:58	01/24/23 12:35	01/24/23 13:13
PREP BATCH : 23VGH7A09	23VGH7A09	23VGH7A09
CALIBRATION REF: AA24003A	AA24003A	AA24003A

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	0.442	88	0.500	0.480	96	8	60-130	30

SURROGATE PARAMETER	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	QCLimit (%)
Bromofluorobenzene	0.0400	0.0450	113	0.0400	0.0473	118	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 : 380-34938
BATCH NO. : 23A218
METHOD : 5030B/8015B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR:	1	1	1
SAMPLE ID	: 380-34938-1	380-34938-1MS	380-34938-1MSD
LAB SAMPLE ID	: A218-01	A218-01M	A218-01S
LAB FILE ID	: AA24008A	AA24009A	AA24010A
DATE PREPARED	: 01/24/23 13:50	01/24/23 14:27	01/24/23 15:05
DATE ANALYZED	: 01/24/23 13:50	01/24/23 14:27	01/24/23 15:05
PREP BATCH	: 23VGH7A09	23VGH7A09	23VGH7A09
CALIBRATION REF:	AA24003A	AA24003A	AA24003A

ACCESSION:

PARAMETERS	PSResult (mg/L)	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	RPD (%)	QLLimit (%)	MaxRPD (%)
Gasoline	ND	0.500	0.446	89	0.500	0.471	94	5	50-130	30

SURROGATE PARAMETER	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	QLLimit (%)
Bromofluorobenzene	0.0400	0.0452	113	0.0400	0.0470	118	60-140

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

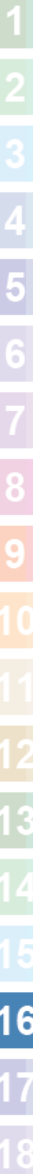
LABORATORY REPORT FOR

EUROFINS EATON ANALYTICAL

380-34938

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

SDG#: 23A218



CASE NARRATIVE

Client : EUROFINS EATON ANALYTICAL

Project: 380-34938

SDG : 23A218

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

One(1) water sample was received on 01/20/23 to be analyzed for Total Petroleum Hydrocarbons by Extraction in accordance with Method 3520C/8015B and project specific requirements.

Holding Time

The sample was analyzed within the prescribed holding time.

Calibration

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

Method Blank

Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. DSA029WB - 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 DSA029WL. 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 23A175-01M/23A175-01S. Refer to Matrix QC summary form for details.

Surrogate

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

Sample Analysis

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

CASE NARRATIVE

Client : EUROFINS EATON ANALYTICAL

Project: 380-34938

SDG : 23A218

METHOD 3520C/8015B
PETROLEUM HYDROCARBONS BY EXTRACTION

One(1) water sample was received on 01/20/23 to be analyzed for Petroleum Hydrocarbons by Extraction in accordance with Method 3520C/8015B and project specific requirements.

Holding Time

The sample was analyzed within the prescribed holding time.

Calibration

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

Method Blank

Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. DSA029WB - result was compliant to project requirement. Refer to sample result summary form for details.

Lab Control Sample

Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) LCS was analyzed. Percent recovery for JP5 was within LCS QC limits in J5A029WL. Refer to LCS summary form for details.

Matrix QC Sample

Matrix spike sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of MS/MSD was analyzed. JP5 was within MS QC limits in 23A175-01M/23A175-01S. Refer to Matrix QC summary form for details.

Surrogate

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

Sample Analysis

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

CASE NARRATIVE

Client : EUROFINS EATON ANALYTICAL

Project: 380-34938

SDG : 23A218

METHOD 3520C/8015B
PETROLEUM HYDROCARBONS BY EXTRACTION

One(1) water sample was received on 01/20/23 to be analyzed for Petroleum Hydrocarbons by Extraction in accordance with Method 3520C/8015B and project specific requirements.

Holding Time

The sample was analyzed within the prescribed holding time.

Calibration

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

Method Blank

Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one(1) method blank was analyzed. DSA029WB - result was compliant to project requirement. Refer to sample result summary form for details.

Lab Control Sample

Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) LCS was analyzed. Percent recovery for JP8 was within LCS QC limits in J8A029WL. Refer to LCS summary form for details.

Matrix QC Sample

Matrix spike sample was prepared and analyzed at a frequency required by the project. For this SDG, one(1) set of MS/MSD was analyzed. JP8 was within MS QC limits in 23A175-01M/23A175-01S. 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

SDG NO. : 23A218
Instrument ID : D5

Client : EUROFINS EATON ANALYTICAL
Project : 380-34938

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	WATER			Extraction Date/Time	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
				Analysis Date/Time	Analysis Date/Time	Analysis Date/Time					
MBLK1W	DSA029WB	1	NA	01/24/2318:24	01/23/2314:30	LA24010A	LA24004A	23DSA029W	Method Blank		
LCS1W	DSA029WL	1	NA	01/24/2318:42	01/23/2314:30	LA24011A	LA24004A	23DSA029W	Lab Control		
380-34938-1	A218-01	1	NA	01/24/2323:36	01/23/2314:30	LA24027A	LA24004A	23DSA029W	Field Sample		

FN - Filename
% Moist - Percent Moisture



LAB CHRONICLE
PETROLEUM HYDROCARBONS BY EXTRACTION

Client : EUROFINS EATON ANALYTICAL SDG NO. : 23A218
 Project : 380-34938 Instrument ID : D5

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	DSA029WB	1	NA	01/24/2318:24	01/23/2314:30	LA24010A	LA24005A	23DSA029W	Method B1ank
LCS1W	J5A029WL	1	NA	01/24/2319:00	01/23/2314:30	LA24012A	LA24005A	23DSA029W	Lab Control Sample (LCS)
380-34938-1	A218-01	1	NA	01/24/2323:36	01/23/2314:30	LA24027A	LA24005A	23DSA029W	Field Sample

FN - Filename
 % Moist - Percent Moisture



LAB CHRONICLE
PETROLEUM HYDROCARBONS BY EXTRACTION

Client : EUROFINS EATON ANALYTICAL
 Project : 380-34938
 SDG NO. : 23A218
 Instrument ID : D5

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
380-34938-1	DSA029WB	1	NA	01/24/23 18:24	01/23/23 14:30	LA24010A	LA24006A	23DSA029W	Method Blank
	J8A029WL	1	NA	01/24/23 19:18	01/23/23 14:30	LA24013A	LA24006A	23DSA029W	Lab Control
	A218-01	1	NA	01/24/23 23:36	01/23/23 14:30	LA24027A	LA24006A	23DSA029W	Field Sample

FN - Filename
 % Moist - Percent Moisture



1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18

SAMPLE RESULTS

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: EUROFINS EATON ANALYTICAL	Date Collected:	01/17/23 09:00
Project	: 380-34938	Date Received:	01/20/23
Batch No.	: 23A218	Date Extracted:	01/23/23 14:30
Sample ID	: 380-34938-1	Date Analyzed:	01/24/23 23:36
Lab Samp ID:	23A218-01	Dilution Factor:	1
Lab File ID:	LA24027A	Matrix:	WATER
Ext Btch ID:	23DSA029W	% Moisture:	NA
Calib. Ref.:	LA24004A	Instrument ID:	D5

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Diesel	ND	0.025	0.012
Motor Oil	ND	0.049	0.025

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.430	0.490	88	60-130
Hexacosane	0.146	0.123	119	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 : 1020ml Final Volume : 5ml
Prepared by : P0reto Analyzed by : SDeeso

METHOD 3520C/8015B
 PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: EUROFINS EATON ANALYTICAL	Date Collected:	01/17/23 09:00
Project	: 380-34938	Date Received:	01/20/23
Batch No.	: 23A218	Date Extracted:	01/23/23 14:30
Sample ID	: 380-34938-1	Date Analyzed:	01/24/23 23:36
Lab Samp ID:	23A218-01	Dilution Factor:	1
Lab File ID:	LA24027A	Matrix:	WATER
Ext Btch ID:	23DSA029W	% Moisture:	NA
Calib. Ref.:	LA24005A	Instrument ID:	D5

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
JP5	ND	0.049	0.025

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.430	0.490	88	60-130
Hexacosane	0.146	0.123	119	60-130

Notes:

RL : Reporting Limit

Parameter H-C Range

JP5 C8-C18

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

Sample Amount : 1020ml

Final Volume : 5ml

Prepared by : P0reto

Analyzed by : SDeeso

METHOD 3520C/8015B
 PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: EUROFINS EATON ANALYTICAL	Date Collected:	01/17/23 09:00
Project	: 380-34938	Date Received:	01/20/23
Batch No.	: 23A218	Date Extracted:	01/23/23 14:30
Sample ID	: 380-34938-1	Date Analyzed:	01/24/23 23:36
Lab Samp ID:	23A218-01	Dilution Factor:	1
Lab File ID:	LA24027A	Matrix:	WATER
Ext Btch ID:	23DSA029W	% Moisture:	NA
Calib. Ref.:	LA24006A	Instrument ID:	D5

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
JPB	ND	0.049	0.025

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.430	0.490	88	60-130
Hexacosane	0.146	0.123	119	60-130

Notes:

RL : Reporting Limit

Parameter H-C Range

JPB C8-C18

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

Sample Amount : 1020ml

Final Volume : 5ml

Prepared by : P0reto

Analyzed by : SDeeso

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18

QC SUMMARIES

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

Client : EUROFINS EATON ANALYTICAL Date Collected: 01/23/23 14:30
Project : 380-34938 Date Received: 01/23/23
Batch No. : 23A218 Date Extracted: 01/23/23 14:30
Sample ID : MBLK1W Date Analyzed: 01/24/23 18:24
Lab Samp ID: DSA029WB Dilution Factor: 1
Lab File ID: LA24010A Matrix: WATER
Ext Btch ID: 23DSA029W % Moisture: NA
Calib. Ref.: LA24004A Instrument ID: D5

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)	
Diesel	ND	0.025	0.012	
Motor Oil	ND	0.050	0.025	
SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.415	0.500	83	60-130
Hexacosane	0.129	0.125	103	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 : P0reto Analyzed by : SDeeso

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL
PROJECT : 380-34938
BATCH NO. : 23A218
METHOD : 3520C/8015B

MATRIX : WATER % MOISTURE:NA
DILUTION FACTOR: 1 1
SAMPLE ID : MBLK1W LCS1W
LAB SAMPLE ID : DSA029WB DSA029WL
LAB FILE ID : LA24010A LA24011A
DATE PREPARED : 01/23/23 14:30 01/23/23 14:30
DATE ANALYZED : 01/24/23 18:24 01/24/23 18:42
PREP BATCH : 23DSA029W 23DSA029W
CALIBRATION REF: LA24004A LA24004A

ACCESSION:

PARAMETERS	MBResult (mg/L)	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	QCLimit (%)
-----	-----	-----	-----	-----	-----
Diesel	ND	2.50	2.43	97	50-130

SURROGATE PARAMETERS	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	QCLimit (%)
-----	-----	-----	-----	-----
Bromobenzene	0.500	0.510	102	60-130
Hexacosane	0.125	0.143	114	60-130

MB: Method Blank sample LCS: Lab Control Sample

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL
PROJECT : 380-35053
BATCH NO. : 23A175
METHOD : 3520C/8015B

MATRIX : WATER		% MOISTURE:NA
DILUTION FACTOR: 1	1	1
SAMPLE ID : 380-35053-1	380-35053-1MS	380-35053-1MSD
LAB SAMPLE ID : 23A175-01	23A175-01M	23A175-01S
LAB FILE ID : LA24014A	LA24015A	LA24016A
DATE PREPARED : 01/23/23 14:30	01/23/23 14:30	01/23/23 14:30
DATE ANALYZED : 01/24/23 19:37	01/24/23 19:55	01/24/23 20:14
PREP BATCH : 23DSA029W	23DSA029W	23DSA029W
CALIBRATION REF: LA24004A	LA24004A	LA24004A

ACCESSION:

PARAMETERS	PSResult (mg/L)	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Diesel	ND	2.75	1.93	70	2.75	2.07	75	7	50-130	30

SURROGATE PARAMETERS	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	QCLimit (%)
Bromobenzene	0.550	0.415	75	0.550	0.446	81	60-130
Hexacosane	0.138	0.147	107	0.138	0.147	107	60-130

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

METHOD 3520C/8015B
 PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: EUROFINS EATON ANALYTICAL	Date Collected:	01/23/23 14:30
Project	: 380-34938	Date Received:	01/23/23
Batch No.	: 23A218	Date Extracted:	01/23/23 14:30
Sample ID	: MBLK1W	Date Analyzed:	01/24/23 18:24
Lab Samp ID:	DSA029WB	Dilution Factor:	1
Lab File ID:	LA24010A	Matrix:	WATER
Ext Btch ID:	23DSA029W	% Moisture:	NA
Calib. Ref.:	LA24005A	Instrument ID:	D5

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)	
JP5	ND	0.050	0.025	
SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.415	0.500	83	60-130
Hexacosane	0.129	0.125	103	60-130

Notes:

RL : Reporting Limit

Parameter H-C Range

JP5 C8-C18

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

Sample Amount : 1000ml

Final Volume : 5ml

Prepared by : P0reto

Analyzed by : SDeeso

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL
PROJECT : 380-34938
BATCH NO. : 23A218
METHOD : 3520C/8015B

MATRIX : WATER % MOISTURE:NA
DILUTION FACTOR: 1 1
SAMPLE ID : MBLK1W LCS1W
LAB SAMPLE ID : DSA029WB J5A029WL
LAB FILE ID : LA24010A LA24012A
DATE PREPARED : 01/23/23 14:30 01/23/23 14:30
DATE ANALYZED : 01/24/23 18:24 01/24/23 19:00
PREP BATCH : 23DSA029W 23DSA029W
CALIBRATION REF: LA24005A LA24005A

ACCESSION:

PARAMETERS	MBResult (mg/L)	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	QCLimit (%)
JP5	ND	2.50	2.51	100	30-160

SURROGATE PARAMETERS	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	QCLimit (%)
Bromobenzene	0.500	0.515	103	60-130
Hexacosane	0.125	0.144	115	60-130

MB: Method Blank sample LCS: Lab Control Sample

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL
PROJECT : 380-35053
BATCH NO. : 23A175
METHOD : 3520C/8015B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR:	1	1	1
SAMPLE ID	: 380-35053-1	380-35053-1MS	380-35053-1MSD
LAB SAMPLE ID	: 23A175-01	23A175-01M	23A175-01S
LAB FILE ID	: LA24014A	LA24017A	LA24018A
DATE PREPARED	: 01/23/23 14:30	01/23/23 14:30	01/23/23 14:30
DATE ANALYZED	: 01/24/23 19:37	01/24/23 20:32	01/24/23 20:50
PREP BATCH	: 23DSA029W	23DSA029W	23DSA029W
CALIBRATION REF:	LA24005A	LA24005A	LA24005A

ACCESSION:

PARAMETERS	PSResult (mg/L)	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
JP5	ND	2.55	1.64	64	2.65	1.97	74	18	30-160	30

SURROGATE PARAMETERS	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	QCLimit (%)
Bromobenzene	0.510	0.410	80	0.530	0.462	87	60-130
Hexacosane	0.127	0.130	102	0.132	0.142	107	60-130

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

METHOD 3520C/8015B
 PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: EUROFINS EATON ANALYTICAL	Date Collected:	01/23/23 14:30
Project	: 380-34938	Date Received:	01/23/23
Batch No.	: 23A218	Date Extracted:	01/23/23 14:30
Sample ID	: MBLK1W	Date Analyzed:	01/24/23 18:24
Lab Samp ID:	DSA029WB	Dilution Factor:	1
Lab File ID:	LA24010A	Matrix:	WATER
Ext Btch ID:	23DSA029W	% Moisture:	NA
Calib. Ref.:	LA24006A	Instrument ID:	D5

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

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.415	0.500	83	60-130
Hexacosane	0.129	0.125	103	60-130

Notes:

RL : Reporting Limit

Parameter H-C Range

JP8 C8-C18

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

Sample Amount : 1000ml

Final Volume : 5ml

Prepared by : P0reto

Analyzed by : SDeeso

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL
PROJECT : 380-34938
BATCH NO. : 23A218
METHOD : 3520C/8015B

MATRIX : WATER % MOISTURE:NA
DILUTION FACTOR: 1 1
SAMPLE ID : MBLK1W LCS1W
LAB SAMPLE ID : DSA029WB J8A029WL
LAB FILE ID : LA24010A LA24013A
DATE PREPARED : 01/23/23 14:30 01/23/23 14:30
DATE ANALYZED : 01/24/23 18:24 01/24/23 19:18
PREP BATCH : 23DSA029W 23DSA029W
CALIBRATION REF: LA24006A LA24006A

ACCESSION:

PARAMETERS	MBResult (mg/L)	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	QCLimit (%)
JP8	ND	2.50	2.10	84	30-160

SURROGATE PARAMETERS	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	QCLimit (%)
Bromobenzene	0.500	0.523	105	60-130
Hexacosane	0.125	0.150	120	60-130

MB: Method Blank sample LCS: Lab Control Sample

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL
PROJECT : 380-35053
BATCH NO. : 23A175
METHOD : 3520C/8015B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR:	1	1	1
SAMPLE ID	: 380-35053-1	380-35053-1MS	380-35053-1MSD
LAB SAMPLE ID	: 23A175-01	23A175-01M	23A175-01S
LAB FILE ID	: LA24014A	LA24019A	LA24020A
DATE PREPARED	: 01/23/23 14:30	01/23/23 14:30	01/23/23 14:30
DATE ANALYZED	: 01/24/23 19:37	01/24/23 21:09	01/24/23 21:27
PREP BATCH	: 23DSA029W	23DSA029W	23DSA029W
CALIBRATION REF:	LA24006A	LA24006A	LA24006A

ACCESSION:

PARAMETERS	PSResult (mg/L)	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
JP8	ND	2.65	1.98	75	2.58	2.17	84	9	30-160	30

SURROGATE PARAMETERS	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	QCLimit (%)
Bromobenzene	0.530	0.474	89	0.515	0.508	99	60-130
Hexacosane	0.132	0.139	105	0.129	0.154	120	60-130

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

February 15, 2023

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

Project Name: RED-HILL Project # 38001111 Job # 380-34938-1
Physis Project ID: 1407003-370

Dear Rachelle,


Enclosed are the analytical results for the sample submitted to PHYSIS Environmental Laboratories, Inc. (PHYSIS) on 1/20/2023. A total of 1 sample was received for analysis in accordance with the attached chain of custody (COC). Per the COC, the sample was analyzed for:

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

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: 1407003-370

RED-HILL Project # 38001111 Job # 380-34938-1

Total Samples: 1

PHYSIS ID	Sample ID	Description	Date	Time	Matrix	Sample Type
103754	AIEA WELLS PUMPS 1&2 (260)	380-34938-1	1/17/2023	9:00	Samplewater	Not Specified

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18

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

TERRA AURA
ENVIRONMENTAL LABORATORIES, INC.

Innovative Solutions for Nature

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18

Base/Neutral Extractable Compounds

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed	
Sample ID: 103754-R1	AIEA WELLS PUMPS 1&2 (260) 380- Matrix: Samplewater						Sampled:	17-Jan-23	9:00	Received:	20-Jan-23	
Disalicylidenepropanediamine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-40112	20-Jan-23	12-Feb-23	



Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed	
Sample ID: 103754-R1	AIEA WELLS PUMPS 1&2 (260) 380- Matrix: Samplewater						Sampled:	17-Jan-23	9:00	Received:	20-Jan-23	
(d10-Acenaphthene)	EPA 625.1	% Recovery	91	1			Total		O-40112	20-Jan-23	12-Feb-23	
(d10-Phenanthrene)	EPA 625.1	% Recovery	90	1			Total		O-40112	20-Jan-23	12-Feb-23	
(d12-Chrysene)	EPA 625.1	% Recovery	95	1			Total		O-40112	20-Jan-23	12-Feb-23	
(d12-Perylene)	EPA 625.1	% Recovery	88	1			Total		O-40112	20-Jan-23	12-Feb-23	
(d8-Naphthalene)	EPA 625.1	% Recovery	83	1			Total		O-40112	20-Jan-23	12-Feb-23	
1-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40112	20-Jan-23	12-Feb-23	
1-Methylphenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40112	20-Jan-23	12-Feb-23	
2,3,5-Trimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40112	20-Jan-23	12-Feb-23	
2,6-Dimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40112	20-Jan-23	12-Feb-23	
2-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40112	20-Jan-23	12-Feb-23	
Acenaphthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40112	20-Jan-23	12-Feb-23	
Acenaphthylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40112	20-Jan-23	12-Feb-23	
Anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40112	20-Jan-23	12-Feb-23	
Benz[a]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40112	20-Jan-23	12-Feb-23	
Benzo[a]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40112	20-Jan-23	12-Feb-23	
Benzo[b]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40112	20-Jan-23	12-Feb-23	
Benzo[e]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40112	20-Jan-23	12-Feb-23	
Benzo[g,h,i]perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40112	20-Jan-23	12-Feb-23	
Benzo[k]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40112	20-Jan-23	12-Feb-23	
Biphenyl	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40112	20-Jan-23	12-Feb-23	
Chrysene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40112	20-Jan-23	12-Feb-23	
D benz[a,h]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40112	20-Jan-23	12-Feb-23	
D benzo[a,l]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40112	20-Jan-23	12-Feb-23	
D benzothiophene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40112	20-Jan-23	12-Feb-23	

Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40112	20-Jan-23	12-Feb-23
Fluorene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40112	20-Jan-23	12-Feb-23
Indeno[1,2,3-cd]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40112	20-Jan-23	12-Feb-23
Naphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40112	20-Jan-23	12-Feb-23
Perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40112	20-Jan-23	12-Feb-23
Phenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40112	20-Jan-23	12-Feb-23
Pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40112	20-Jan-23	12-Feb-23



QUALITY CONTROL REPORT

TERRA ENVIRONMENTAL LABORATORIES, INC.

Innovative Solutions for Nature

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18

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: 103753-B1		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:		Received:			
		Method: EPA 625.1			Batch ID: O-40112			Prepared: 19-Jan-23		Analyzed: 11-Feb-23			
Disalicylideneprapanediamin	Total	ND	1	0.05	0.1	µg/L							
Sample ID: 103753-BS1		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:		Received:			
		Method: EPA 625.1			Batch ID: O-40112			Prepared: 19-Jan-23		Analyzed: 11-Feb-23			
Disalicylideneprapanediamin	Total	42.2	1	0.05	0.1	µg/L	50	0	84	50 - 150%	PASS		
Sample ID: 103753-BS2		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:		Received:			
		Method: EPA 625.1			Batch ID: O-40112			Prepared: 19-Jan-23		Analyzed: 11-Feb-23			
Disalicylideneprapanediamin	Total	47.1	1	0.05	0.1	µg/L	50	0	94	50 - 150%	PASS	11	30 PASS

Polynuclear Aromatic Hydrocarbons

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY	PRECISION	QA CODEc
							LEVEL	RESULT	% LIMITS	% LIMITS	
Sample ID: 103753-B1		QAQC Procedural Blank			Matrix: BlankMatrix		Sampled:		Received:		
	Method: EPA 625.1					Batch ID: O-40112	Prepared: 19-Jan-23	Analyzed: 11-Feb-23			
(d10-Acenaphthene)	Total	93	1			% Recovery	100	93	27 - 133%	PASS	
(d10-Phenanthrene)	Total	94	1			% Recovery	100	94	43 - 129%	PASS	
(d12-Chrysene)	Total	108	1			% Recovery	100	108	52 - 144%	PASS	
(d12-Perylene)	Total	91	1			% Recovery	100	91	36 - 161%	PASS	
(d8-Naphthalene)	Total	88	1			% Recovery	100	88	25 - 125%	PASS	
1-Methylnaphthalene	Total	ND	1	0.001	0.005						µg/L
1-Methylphenanthrene	Total	ND	1	0.001	0.005						µg/L
2,3,5-Trimethylnaphthalene	Total	ND	1	0.001	0.005						µg/L
2,6-Dimethylnaphthalene	Total	ND	1	0.001	0.005						µg/L
2-Methylnaphthalene	Total	ND	1	0.001	0.005						µg/L
Acenaphthene	Total	ND	1	0.001	0.005						µg/L
Acenaphthylene	Total	ND	1	0.001	0.005						µg/L
Anthracene	Total	ND	1	0.001	0.005						µg/L
Benz[a]anthracene	Total	ND	1	0.001	0.005						µg/L
Benzo[a]pyrene	Total	ND	1	0.001	0.005						µg/L
Benzo[b]fluoranthene	Total	ND	1	0.001	0.005						µg/L
Benzo[e]pyrene	Total	ND	1	0.001	0.005						µg/L
Benzo[g,h,i]perylene	Total	ND	1	0.001	0.005						µg/L
Benzo[k]fluoranthene	Total	ND	1	0.001	0.005						µg/L
Biphenyl	Total	ND	1	0.001	0.005						µg/L
Chrysene	Total	ND	1	0.001	0.005						µg/L
Dibenz[a,h]anthracene	Total	ND	1	0.001	0.005						µg/L
Dibenzo[a,l]pyrene	Total	ND	1	0.001	0.005						µg/L
Dibenzothiophene	Total	ND	1	0.001	0.005						µg/L

Polynuclear Aromatic Hydrocarbons

QUALITY CONTROL REPORT

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



Polynuclear Aromatic Hydrocarbons

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY	PRECISION	QA CODE	
							LEVEL	RESULT	%	LIMITS	%	LIMITS
Sample ID: 103753-BS1		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:		Received:		
Method: EPA 625.1		Batch ID: O-40112			Prepared: 19-Jan-23		Analyzed: 11-Feb-23					
(d10-Acenaphthene)	Total	96	1			% Recovery	100	0	96	27 - 133%	PASS	
(d10-Phenanthrene)	Total	93	1			% Recovery	100	0	93	43 - 129%	PASS	
(d12-Chrysene)	Total	96	1			% Recovery	100	0	96	52 - 144%	PASS	
(d12-Perylene)	Total	93	1			% Recovery	100	0	93	36 - 161%	PASS	
(d8-Naphthalene)	Total	85	1			% Recovery	100	0	85	25 - 125%	PASS	
1-Methylnaphthalene	Total	0.478	1	0.001	0.005	µg/L	0.5	0	96	31 - 128%	PASS	
1-Methylphenanthrene	Total	0.479	1	0.001	0.005	µg/L	0.5	0	96	66 - 127%	PASS	
2,3,5-Trimethylnaphthalene	Total	0.496	1	0.001	0.005	µg/L	0.5	0	99	55 - 122%	PASS	
2,6-Dimethylnaphthalene	Total	0.465	1	0.001	0.005	µg/L	0.5	0	93	48 - 120%	PASS	
2-Methylnaphthalene	Total	0.478	1	0.001	0.005	µg/L	0.5	0	96	47 - 130%	PASS	
Acenaphthene	Total	0.486	1	0.001	0.005	µg/L	0.5	0	97	53 - 131%	PASS	
Acenaphthylene	Total	0.46	1	0.001	0.005	µg/L	0.5	0	92	43 - 140%	PASS	
Anthracene	Total	0.476	1	0.001	0.005	µg/L	0.5	0	95	58 - 135%	PASS	
Benz[a]anthracene	Total	0.461	1	0.001	0.005	µg/L	0.5	0	92	55 - 145%	PASS	
Benzo[a]pyrene	Total	0.485	1	0.001	0.005	µg/L	0.5	0	97	51 - 143%	PASS	
Benzo[b]fluoranthene	Total	0.476	1	0.001	0.005	µg/L	0.5	0	95	46 - 165%	PASS	
Benzo[e]pyrene	Total	0.448	1	0.001	0.005	µg/L	0.5	0	90	42 - 152%	PASS	
Benzo[g,h,i]perylene	Total	0.482	1	0.001	0.005	µg/L	0.5	0	96	63 - 133%	PASS	
Benzo[k]fluoranthene	Total	0.463	1	0.001	0.005	µg/L	0.5	0	93	56 - 145%	PASS	
Biphenyl	Total	0.484	1	0.001	0.005	µg/L	0.5	0	97	56 - 119%	PASS	
Chrysene	Total	0.447	1	0.001	0.005	µg/L	0.5	0	89	56 - 141%	PASS	
Dibenz[a,h]anthracene	Total	0.503	1	0.001	0.005	µg/L	0.5	0	101	55 - 150%	PASS	
Dibenzo[a,l]pyrene	Total	0.463	1	0.001	0.005	µg/L	0.5	0	93	50 - 150%	PASS	
Dibenzothiophene	Total	0.47	1	0.001	0.005	µg/L	0.5	0	94	46 - 126%	PASS	

Polynuclear Aromatic Hydrocarbons

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY		PRECISION		QA CODE _c
							LEVEL	RESULT	%	LIMITS	%	LIMITS	
Fluoranthene	Total	0.472	1	0.001	0.005	µg/L	0.5	0	94	60 - 146%	PASS		
Fluorene	Total	0.485	1	0.001	0.005	µg/L	0.5	0	97	58 - 131%	PASS		
Indeno[1,2,3-cd]pyrene	Total	0.485	1	0.001	0.005	µg/L	0.5	0	97	50 - 151%	PASS		
Naphthalene	Total	0.441	1	0.001	0.005	µg/L	0.5	0	88	41 - 126%	PASS		
Perylene	Total	0.476	1	0.001	0.005	µg/L	0.5	0	95	48 - 141%	PASS		
Phenanthrene	Total	0.472	1	0.001	0.005	µg/L	0.5	0	94	67 - 127%	PASS		
Pyrene	Total	0.472	1	0.001	0.005	µg/L	0.5	0	94	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: 103753-BS2		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:			Received:			
Method: EPA 625.1		Batch ID: O-40112			Prepared: 19-Jan-23			Analyzed: 11-Feb-23						
(d10-Acenaphthene)	Total	94	1			% Recovery	100	0	94	27 - 133%	PASS	2	30	PASS
(d10-Phenanthrene)	Total	94	1			% Recovery	100	0	94	43 - 129%	PASS	1	30	PASS
(d12-Chrysene)	Total	95	1			% Recovery	100	0	95	52 - 144%	PASS	1	30	PASS
(d12-Perylene)	Total	93	1			% Recovery	100	0	93	36 - 161%	PASS	0	30	PASS
(d8-Naphthalene)	Total	90	1			% Recovery	100	0	90	25 - 125%	PASS	6	30	PASS
1-Methylnaphthalene	Total	0.456	1	0.001	0.005	µg/L	0.5	0	91	31 - 128%	PASS	5	30	PASS
1-Methylphenanthrene	Total	0.466	1	0.001	0.005	µg/L	0.5	0	93	66 - 127%	PASS	3	30	PASS
2,3,5-Trimethylnaphthalene	Total	0.482	1	0.001	0.005	µg/L	0.5	0	96	55 - 122%	PASS	3	30	PASS
2,6-Dimethylnaphthalene	Total	0.461	1	0.001	0.005	µg/L	0.5	0	92	48 - 120%	PASS	1	30	PASS
2-Methylnaphthalene	Total	0.458	1	0.001	0.005	µg/L	0.5	0	92	47 - 130%	PASS	4	30	PASS
Acenaphthene	Total	0.472	1	0.001	0.005	µg/L	0.5	0	94	53 - 131%	PASS	3	30	PASS
Acenaphthylene	Total	0.463	1	0.001	0.005	µg/L	0.5	0	93	43 - 140%	PASS	1	30	PASS
Anthracene	Total	0.467	1	0.001	0.005	µg/L	0.5	0	93	58 - 135%	PASS	2	30	PASS
Benz[a]anthracene	Total	0.452	1	0.001	0.005	µg/L	0.5	0	90	55 - 145%	PASS	2	30	PASS
Benzo[a]pyrene	Total	0.492	1	0.001	0.005	µg/L	0.5	0	98	51 - 143%	PASS	1	30	PASS
Benzo[b]fluoranthene	Total	0.483	1	0.001	0.005	µg/L	0.5	0	97	46 - 165%	PASS	2	30	PASS
Benzo[e]pyrene	Total	0.473	1	0.001	0.005	µg/L	0.5	0	95	42 - 152%	PASS	5	30	PASS
Benzo[g,h,i]perylene	Total	0.477	1	0.001	0.005	µg/L	0.5	0	95	63 - 133%	PASS	1	30	PASS
Benzo[k]fluoranthene	Total	0.469	1	0.001	0.005	µg/L	0.5	0	94	56 - 145%	PASS	1	30	PASS
Biphenyl	Total	0.46	1	0.001	0.005	µg/L	0.5	0	92	56 - 119%	PASS	5	30	PASS
Chrysene	Total	0.454	1	0.001	0.005	µg/L	0.5	0	91	56 - 141%	PASS	2	30	PASS
Dibenz[a,h]anthracene	Total	0.482	1	0.001	0.005	µg/L	0.5	0	96	55 - 150%	PASS	5	30	PASS
Dibenzo[a,l]pyrene	Total	0.491	1	0.001	0.005	µg/L	0.5	0	98	50 - 150%	PASS	5	30	PASS
Dibenzothiophene	Total	0.477	1	0.001	0.005	µg/L	0.5	0	95	46 - 126%	PASS	1	30	PASS

Polynuclear Aromatic Hydrocarbons

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY		PRECISION		QA CODE _c	
							LEVEL	RESULT	%	LIMITS	%	LIMITS		
Fluoranthene	Total	0.458	1	0.001	0.005	µg/L	0.5	0	92	60 - 146%	PASS	2	30	PASS
Fluorene	Total	0.474	1	0.001	0.005	µg/L	0.5	0	95	58 - 131%	PASS	2	30	PASS
Indeno[1,2,3-cd]pyrene	Total	0.496	1	0.001	0.005	µg/L	0.5	0	99	50 - 151%	PASS	2	30	PASS
Naphthalene	Total	0.458	1	0.001	0.005	µg/L	0.5	0	92	41 - 126%	PASS	4	30	PASS
Perylene	Total	0.465	1	0.001	0.005	µg/L	0.5	0	93	48 - 141%	PASS	2	30	PASS
Phenanthrene	Total	0.48	1	0.001	0.005	µg/L	0.5	0	96	67 - 127%	PASS	2	30	PASS
Pyrene	Total	0.462	1	0.001	0.005	µg/L	0.5	0	92	54 - 156%	PASS	2	30	PASS

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18

PHYSIS

TENTATIVELY

IDENTIFIED COMPOUNDS

ENVIRONMENTAL LABORATORIES, INC.

Innovative Solutions for Nature

Sample ID: 103754

RT	Area Pct	Concentration (ng/L)	Library/ID	Cas Number	Match Qual
35.4499	3.1744	1111	Anthracene-D10-	1719-06-8	95
10.7981	1.2520	438	1,5-Heptadien-4-one, 3,3,6-trimethyl-	546-49-6	87
32.5863	0.5965	209	Benzoic acid, 2-ethylhexyl ester	5444-75-7	95
10.1609	0.3010	105	Cyclopentane, 1,2,3,4,5-pentamethyl-	1000152-79-7	92

Concentration estimated using the response for Anthracene-d10

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18

Sample ID: Lab Blank Batch O-40112

RT	Area Pct	Concentration (ng/L)	Library/ID	Cas Number	Match Qual
35.8751	6.2646	1111	Anthracene-D10-	1719-06-8	96
10.8008	1.4974	266	1,5-Heptadien-4-one, 3,3,6-trimethyl-	546-49-6	85

Concentration estimated using the response for Anthracene-d10

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18

PERFORMANCE CHAIN OF CUSTODY

TERRA ENVIRONMENTAL LABORATORIES, INC. AURA

Innovative Solutions for Nature

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- 16
- 17
- 18

750 Royal Oaks Drive Suite 100
Monrovia, CA 91016
Phone: 626-396-1100

Chain of Custody Record



Environment Testing

Client Information (Sub Contract Lab)		Client Contact: Shipping/Receiving	Phone:	Lab Pk: Arada, Rachelle	E-Mail: Rachelle.Arada@eurofins.com	Carrier Tracking No(s):	State of Origin: Hawaii	COC No: 380-3544.1	Page: 1 of 1
Company: Physis Environmental Laboratories		Address: 1904 Wright Circle,	Due Date Requested: 2/2/2023	Accreditations Required (See note): State - Hawaii		Job #:		380-34938-1	Preservation Codes:
City: Anaheim		State, Zip: CA, 92806	PO #: WQ #:	Analysis Requested		A - HCL		M - Hexane	
Project Name: RED HILL		Project #: 38001111	SSOW#:	Field Filtered Sample (Yes or No)		B - NaOH		N - None	
Site: Honolulu BWS Sites				Perform MS/MSD (Yes or No)		C - Zn Acetate		O - AsNaO2	
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	SUB (625 PAH Physis LL (EAL) + TICe)/ 625 PAH Physis LL (EAL) + TICs		D - Nitric Acid		Q - Na2SO4	
AIEA WELLS PUMPS 182 (260) (380-34938-1)	1/17/23	09:00	Water	X		E - NaHSO4		R - Na2S2O3	
						F - MeOH		S - H2SO4	
						G - Amchlor		T - TSP Dodecahydrate	
						H - Ascorbic Acid		U - Acetone	
						I - Ice		V - MCAA	
						J - DI Water		W - pH 4.5	
						K - EDTA		Y - Trizma	
						L - EDA		Z - other (specify)	
						Total Number of containers		2	Special Instructions/Note:
									See Attached Instructions
<p>Note: Since laboratory accreditations are subject to change, Eurofins Eaton Analytical, LLC places the ownership of method, analyze & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/matrix being analyzed, the samples must be shipped back to the Eurofins Eaton Analytical, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Eaton Analytical, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Eaton Analytical, LLC.</p>									
<p>Possible Hazard Identification</p> <p>Unconfirmed</p> <p>Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2</p> <p>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</p> <p><input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For Months</p>									
Empty Kit Reinquished by:		Date/Time:	Company:	Received by:		Date/Time:	Company:	Method of Shipment:	
Reinquished by: [Signature]		01/20/2023 11:25	ETA	[Signature]		1-20-23 11:26	OC		
Reinquished by: [Signature]		Date/Time:	Company:	Received by: [Signature]		Date/Time:	Company:		
Custody Seals Intact: Δ Yes Δ No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:					

Project Iteration ID: 1407003-370
Client Name: Eurofins Eaton Analytical
Project Name: RED-HILL Project # 38001111 Job # 380-34938-1
COC Page Number: 2 of 2
Bottle Label Color: NA

Sample Receipt Summary

Receiving Info

1. Initials Received By: AT
 2. Date Received: 1/20/2023
 3. Time Received: 1400
 4. Client Name: Eurofins
 5. Courier Information: (Please circle)
 - Client
 - UPS
 - FedEx
 - PHYSIS Driver:
 - i. Start Time: _____
 - ii. End Time: _____
 - Area Fast
 - Ontrac
 - DRS DCS
 - PAMS
 - iii. Total Mileage: _____
 - iv. Number of Pickups: _____
6. Container Information: (Please put the # of containers or circle none)
 - 3 Cooler
 - Styrofoam Cooler
 - Boxes
 - None
 - Carboy(s)
 - Carboy Trash Can(s)
 - Carboy Cap(s)
 - Other _____
7. What type of ice was used: (Please circle any that apply)
 - Wet Ice
 - Blue Ice
 - Dry Ice
 - Water
 - None
8. Randomly Selected Samples Temperature (°C): -0.2
Used I/R Thermometer # 1-2

Inspection Info

1. Initials Inspected By: RGH

Sample Integrity Upon Receipt:

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

Notes:

Monrovia, CA (Suite 100)

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

Chain of Custody Record



Environment Testing

Client Information		Sampler: <i>Olga Hayden</i>	Lab PM: Arada, Rachele	Carrier Tracking No(s):	COC No: 380-9770-2757.2	
Client Contact: Dr. Ron Fenstermacher		Phone: 808-748-5840	E-Mail: Rachele.Arada@et.eurofinsus.com	State of Origin:	Page: Page 2 of 3	
Company: City & County of Honolulu		PWSID:	Analysis Requested			
Address: 630 South Baretania Street Chemistry Lab		Due Date Requested:	SUBCONTRACT - 625 PAH Physis LL (EAL) + TICs SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL) SUBCONTRACT - 8015 Diesel LL (EAL) and Motor Oil 625.2_PREC - (MOD) 525plus Plus TICs SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL) 537.1_DW_PREC - 537.1 Fuel List 533 - All Analytes			
City: Honolulu		TAT Requested (days):				
State, Zip: HI, 96843		Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No				
Phone: 808-748-5091(Tel)		PO #: C20525101 exp 05312023				
Email: RFENSTERMACHER@hbws.org		WO #:				
Project Name: RED-HILL/HBWS Sites Event Desc: RUSH Weekly Red Hill		Project #: 38001111	Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodocahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Y - Trizma Z - other (specify)			
Site: Hawaii		SSOW#:				
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=oils, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Special Instructions/Note:
			Preservation Code:			
HALAWA WELLS UNITS 1&2				Water		
MOANALUA WELLS				Water		
AIEA GULCH WELLS PUMP 2				Water		
AIEA WELLS PUMPS 1&2 (260)				Water		
HALAWA WELLS UNITS 1&2				Water		
TB MOANALUA WELLS				Water		
TB AIEA GULCH WELLS PUMP2				Water		
TB AIEA WELLS PUMPS 1&2 (260)	1-17-23	0900	G	Water	X X X X X X	Pump 2 in service
TB HALAWA WELLS UNITS 1&2				Water		
MOANALUA WELLS				Water		
AIEA GULCH WELLS PUMP 2				Water		
Possible Hazard Identification			Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)			
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological			<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months			
Deliverable Requested: I, II, III, IV, Other (specify)			Special Instructions/QC Requirements:			
Empty Kit Relinquished by:		Date:	Time:	Method of Shipment: <i>Fedex 771064953641</i>		
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:	
	1-17-23 1100		<i>Chad B...</i>	1-19-23 1000	<i>COB</i>	
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:	
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: <i>(150) 3.0-2.9 642</i>				



380-34938 COC

Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-34938-1

Login Number: 34938
List Number: 1
Creator: Elyas, Matthew

List Source: Eurofins Drinking Water Testing Pomona

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