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ANALYTICAL REPORT

PREPARED FOR

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

Generated 5/25/2023 6:08:44 PM

JOB DESCRIPTION

RED-HILL
RUSH Weekly Red Hill

JOB NUMBER

380-43372-1

Eurofins Eaton Analytical Pomona

Job Notes

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

Compliance Statement

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

Authorization



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



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Definitions/Glossary

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

Job ID: 380-43372-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
*1	LCS/LCSD RPD exceeds control limits.
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
T	Result is a tentatively identified compound (TIC) and an estimated value.

LCMS

Qualifier	Qualifier Description
B	Analyte was found in the associated method blank.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Subcontract

Qualifier	Qualifier Description
U	This analyte was not detected.

Glossary

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

Case Narrative

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

Job ID: 380-43372-1

Job ID: 380-43372-1

Laboratory: Eurofins Eaton Analytical Pomona

Narrative

Job Narrative 380-43372-1

Comments

No additional comments.

Receipt

The samples were received on 4/12/2023 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 3.9° C.

Receipt Exceptions

The Field Sampler was not listed on the Chain of Custody.

GC/MS Semi VOA

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

LCMS

Method 533: Batch 380-39722 has a method blank contamination of Perfluorobutanoic acid (PFBA) acid at 0.797ng/L which is above 1/3 MRL limit but below MRL. Non-Detect results are valid for compliance reporting as per EPA Method 533.

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

Subcontract non-Sister

See attached subcontract report.

Organic Prep

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

Subcontract Work

Methods 8015 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: 380-43372-1

Client Sample ID: AIEA GULCH WELLS PUMP 2
PWSID Number: HI0000331

Lab Sample ID: 380-43372-1

No Detections.

Client Sample ID: TB: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-43372-2

No Detections.

Client Sample ID: FB: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-43372-3

No Detections.

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This Detection Summary does not include radiochemical test results.

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Client Sample Results

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

Job ID: 380-43372-1

Client Sample ID: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-43372-1

Date Collected: 04/11/23 10:10

Matrix: Drinking Water

Date Received: 04/12/23 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		0.097	ug/L		04/14/23 10:00	04/17/23 17:44	1
2,4'-DDE	ND		0.097	ug/L		04/14/23 10:00	04/17/23 17:44	1
2,4'-DDT	ND		0.097	ug/L		04/14/23 10:00	04/17/23 17:44	1
2,4-Dinitrotoluene	ND		0.097	ug/L		04/14/23 10:00	04/17/23 17:44	1
2,6-Dinitrotoluene	ND		0.097	ug/L		04/14/23 10:00	04/17/23 17:44	1
4,4'-DDD	ND		0.097	ug/L		04/14/23 10:00	04/17/23 17:44	1
4,4'-DDE	ND		0.097	ug/L		04/14/23 10:00	04/17/23 17:44	1
4,4'-DDT	ND		0.097	ug/L		04/14/23 10:00	04/17/23 17:44	1
Acenaphthene	ND		0.097	ug/L		04/14/23 10:00	04/17/23 17:44	1
Acenaphthylene	ND		0.097	ug/L		04/14/23 10:00	04/17/23 17:44	1
Acetochlor	ND		0.097	ug/L		04/14/23 10:00	04/17/23 17:44	1
Alachlor	ND		0.049	ug/L		04/14/23 10:00	04/17/23 17:44	1
alpha-BHC	ND		0.097	ug/L		04/14/23 10:00	04/17/23 17:44	1
alpha-Chlordane	ND		0.049	ug/L		04/14/23 10:00	04/17/23 17:44	1
Anthracene	ND		0.019	ug/L		04/14/23 10:00	04/17/23 17:44	1
Atrazine	ND		0.049	ug/L		04/14/23 10:00	04/17/23 17:44	1
Benz(a)anthracene	ND		0.049	ug/L		04/14/23 10:00	04/17/23 17:44	1
Benzo[a]pyrene	ND		0.019	ug/L		04/14/23 10:00	04/17/23 17:44	1
Benzo[b]fluoranthene	ND		0.019	ug/L		04/14/23 10:00	04/17/23 17:44	1
Benzo[g,h,i]perylene	ND		0.049	ug/L		04/14/23 10:00	04/17/23 17:44	1
Benzo[k]fluoranthene	ND		0.019	ug/L		04/14/23 10:00	04/17/23 17:44	1
beta-BHC	ND		0.097	ug/L		04/14/23 10:00	04/17/23 17:44	1
Bromacil	ND		0.097	ug/L		04/14/23 10:00	04/17/23 17:44	1
Butachlor	ND		0.049	ug/L		04/14/23 10:00	04/17/23 17:44	1
Butylbenzylphthalate	ND		0.49	ug/L		04/14/23 10:00	04/17/23 17:44	1
Caffeine	ND		0.049	ug/L		04/14/23 10:00	04/17/23 17:44	1
Chlorobenzilate	ND		0.097	ug/L		04/14/23 10:00	04/17/23 17:44	1
Chloroneb	ND		0.097	ug/L		04/14/23 10:00	04/17/23 17:44	1
Chlorothalonil (Draconil, Bravo)	ND		0.097	ug/L		04/14/23 10:00	04/17/23 17:44	1
Chlorpyrifos	ND		0.049	ug/L		04/14/23 10:00	04/17/23 17:44	1
Chrysene	ND		0.019	ug/L		04/14/23 10:00	04/17/23 17:44	1
delta-BHC	ND		0.097	ug/L		04/14/23 10:00	04/17/23 17:44	1
Di(2-ethylhexyl)adipate	ND		0.58	ug/L		04/14/23 10:00	04/17/23 17:44	1
Bis(2-ethylhexyl) phthalate	ND		0.58	ug/L		04/14/23 10:00	04/17/23 17:44	1
Diazinon (Qualitative)	ND		0.097	ug/L		04/14/23 10:00	04/17/23 17:44	1
Dibenz(a,h)anthracene	ND		0.049	ug/L		04/14/23 10:00	04/17/23 17:44	1
Diclorvos (DDVP)	ND		0.049	ug/L		04/14/23 10:00	04/17/23 17:44	1
Dieldrin	ND		0.19	ug/L		04/14/23 10:00	04/17/23 17:44	1
Diethylphthalate	ND		0.49	ug/L		04/14/23 10:00	04/17/23 17:44	1
Dimethoate	ND	*1	0.097	ug/L		04/14/23 10:00	04/17/23 17:44	1
Dimethylphthalate	ND		0.49	ug/L		04/14/23 10:00	04/17/23 17:44	1
Di-n-butyl phthalate	ND		0.97	ug/L		04/14/23 10:00	04/17/23 17:44	1
Di-n-octyl phthalate	ND		0.097	ug/L		04/14/23 10:00	04/17/23 17:44	1
Endosulfan I (Alpha)	ND		0.097	ug/L		04/14/23 10:00	04/17/23 17:44	1
Endosulfan II (Beta)	ND		0.097	ug/L		04/14/23 10:00	04/17/23 17:44	1
Endosulfan sulfate	ND		0.097	ug/L		04/14/23 10:00	04/17/23 17:44	1
Endrin	ND		0.097	ug/L		04/14/23 10:00	04/17/23 17:44	1
Endrin aldehyde	ND		0.097	ug/L		04/14/23 10:00	04/17/23 17:44	1
EPTC	ND		0.097	ug/L		04/14/23 10:00	04/17/23 17:44	1

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Client Sample Results

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

Job ID: 380-43372-1

Client Sample ID: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-43372-1

Date Collected: 04/11/23 10:10

Matrix: Drinking Water

Date Received: 04/12/23 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		0.097	ug/L		04/14/23 10:00	04/17/23 17:44	1
Fluorene	ND		0.049	ug/L		04/14/23 10:00	04/17/23 17:44	1
gamma-Chlordane	ND		0.049	ug/L		04/14/23 10:00	04/17/23 17:44	1
Heptachlor	ND		0.039	ug/L		04/14/23 10:00	04/17/23 17:44	1
Heptachlor epoxide (isomer B)	ND		0.049	ug/L		04/14/23 10:00	04/17/23 17:44	1
Hexachlorobenzene	ND		0.049	ug/L		04/14/23 10:00	04/17/23 17:44	1
Hexachlorocyclopentadiene	ND		0.049	ug/L		04/14/23 10:00	04/17/23 17:44	1
Indeno[1,2,3-cd]pyrene	ND		0.049	ug/L		04/14/23 10:00	04/17/23 17:44	1
Isophorone	ND		0.49	ug/L		04/14/23 10:00	04/17/23 17:44	1
Lindane	ND		0.039	ug/L		04/14/23 10:00	04/17/23 17:44	1
Malathion	ND		0.097	ug/L		04/14/23 10:00	04/17/23 17:44	1
Methoxychlor	ND		0.097	ug/L		04/14/23 10:00	04/17/23 17:44	1
Metolachlor	ND		0.049	ug/L		04/14/23 10:00	04/17/23 17:44	1
Metribuzin	ND		0.049	ug/L		04/14/23 10:00	04/17/23 17:44	1
Molinate	ND		0.097	ug/L		04/14/23 10:00	04/17/23 17:44	1
Naphthalene	ND		0.29	ug/L		04/14/23 10:00	04/17/23 17:44	1
Parathion	ND	*+	0.097	ug/L		04/14/23 10:00	04/17/23 17:44	1
Pendimethalin (Penoxaline)	ND		0.097	ug/L		04/14/23 10:00	04/17/23 17:44	1
Total Permethrin (mixed isomers)	ND		0.19	ug/L		04/14/23 10:00	04/17/23 17:44	1
Phenanthrene	ND		0.039	ug/L		04/14/23 10:00	04/17/23 17:44	1
Propachlor	ND	*+	0.049	ug/L		04/14/23 10:00	04/17/23 17:44	1
Pyrene	ND		0.049	ug/L		04/14/23 10:00	04/17/23 17:44	1
Simazine	ND	*+	0.049	ug/L		04/14/23 10:00	04/17/23 17:44	1
Terbacil	ND	*+	0.097	ug/L		04/14/23 10:00	04/17/23 17:44	1
Terbutylazine	ND		0.097	ug/L		04/14/23 10:00	04/17/23 17:44	1
Thiobencarb	ND		0.19	ug/L		04/14/23 10:00	04/17/23 17:44	1
trans-Nonachlor	ND		0.049	ug/L		04/14/23 10:00	04/17/23 17:44	1
Trifluralin	ND		0.097	ug/L		04/14/23 10:00	04/17/23 17:44	1

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Tentatively Identified Compound	None		ug/L			N/A	04/14/23 10:00	04/17/23 17:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	95		70 - 130	04/14/23 10:00	04/17/23 17:44	1
Triphenylphosphate	96		70 - 130	04/14/23 10:00	04/17/23 17:44	1
Perylene-d12	86		70 - 130	04/14/23 10:00	04/17/23 17:44	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		05/08/23 12:55	05/10/23 22:18	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:18	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:18	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:18	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:18	1
Perfluorodecanoic acid (PFDA)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:18	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:18	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:18	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-43372-1

Client Sample ID: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-43372-1

Date Collected: 04/11/23 10:10

Matrix: Drinking Water

Date Received: 04/12/23 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		05/08/23 12:55	05/10/23 22:18	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:18	1
Perfluorononanoic acid (PFNA)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:18	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:18	1
Perfluorooctanoic acid (PFOA)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:18	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:18	1
Perfluorobutanoic acid (PFBA)	ND	B	2.0	ng/L		05/08/23 12:55	05/10/23 22:18	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:18	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:18	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:18	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:18	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:18	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:18	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:18	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:18	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:18	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:18	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	94		50 - 200	05/08/23 12:55	05/10/23 22:18	1
13C6 PFDA	97		50 - 200	05/08/23 12:55	05/10/23 22:18	1
13C5 PFHxA	94		50 - 200	05/08/23 12:55	05/10/23 22:18	1
13C4 PFHpA	93		50 - 200	05/08/23 12:55	05/10/23 22:18	1
13C8 PFOA	100		50 - 200	05/08/23 12:55	05/10/23 22:18	1
13C9 PFNA	105		50 - 200	05/08/23 12:55	05/10/23 22:18	1
13C7 PFUnA	99		50 - 200	05/08/23 12:55	05/10/23 22:18	1
13C2 PFDoA	97		50 - 200	05/08/23 12:55	05/10/23 22:18	1
13C4 PFBA	103		50 - 200	05/08/23 12:55	05/10/23 22:18	1
13C5 PFPeA	105		50 - 200	05/08/23 12:55	05/10/23 22:18	1
13C3 PFBS	110		50 - 200	05/08/23 12:55	05/10/23 22:18	1
13C3 PFHxS	103		50 - 200	05/08/23 12:55	05/10/23 22:18	1
13C8 PFOS	102		50 - 200	05/08/23 12:55	05/10/23 22:18	1
13C2-4:2-FTS	114		50 - 200	05/08/23 12:55	05/10/23 22:18	1
13C2-6:2-FTS	106		50 - 200	05/08/23 12:55	05/10/23 22:18	1
13C2-8:2-FTS	102		50 - 200	05/08/23 12:55	05/10/23 22:18	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		04/17/23 08:00	04/20/23 10:42	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	ng/L		04/17/23 08:00	04/20/23 10:42	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	ng/L		04/17/23 08:00	04/20/23 10:42	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	ng/L		04/17/23 08:00	04/20/23 10:42	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-43372-1

Client Sample ID: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-43372-1

Date Collected: 04/11/23 10:10

Matrix: Drinking Water

Date Received: 04/12/23 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		04/17/23 08:00	04/20/23 10:42	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	ng/L		04/17/23 08:00	04/20/23 10:42	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	ng/L		04/17/23 08:00	04/20/23 10:42	1
Perfluorooctanoic acid (PFOA)	ND		2.0	ng/L		04/17/23 08:00	04/20/23 10:42	1
Perfluorodecanoic acid (PFDA)	ND		2.0	ng/L		04/17/23 08:00	04/20/23 10:42	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	ng/L		04/17/23 08:00	04/20/23 10:42	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	ng/L		04/17/23 08:00	04/20/23 10:42	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	ng/L		04/17/23 08:00	04/20/23 10:42	1
Perfluorononanoic acid (PFNA)	ND		2.0	ng/L		04/17/23 08:00	04/20/23 10:42	1
Perfluorotetradecanoic acid (PFTA)	ND		2.0	ng/L		04/17/23 08:00	04/20/23 10:42	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	ng/L		04/17/23 08:00	04/20/23 10:42	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		2.0	ng/L		04/17/23 08:00	04/20/23 10:42	1
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		2.0	ng/L		04/17/23 08:00	04/20/23 10:42	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	ng/L		04/17/23 08:00	04/20/23 10:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NETFOSAA	105		70 - 130	04/17/23 08:00	04/20/23 10:42	1
13C2 PFHxA	98		70 - 130	04/17/23 08:00	04/20/23 10:42	1
13C2 PFDA	96		70 - 130	04/17/23 08:00	04/20/23 10:42	1
13C3-GenX	93		70 - 130	04/17/23 08:00	04/20/23 10:42	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 14:00	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 14:00	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 14:00	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 14:00	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 14:00	1
Acenaphthene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 14:00	1
Acenaphthylene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 14:00	1
Anthracene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 14:00	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 14:00	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 14:00	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 14:00	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 14:00	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 14:00	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 14:00	1
Biphenyl	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 14:00	1
Chrysene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 14:00	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 14:00	1
Dibenzo[a,i]pyrene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 14:00	1
Dibenzothiophene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 14:00	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		04/13/23 00:00	04/26/23 14:00	1
Fluoranthene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 14:00	1
Fluorene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 14:00	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 14:00	1
Naphthalene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 14:00	1

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Client Sample Results

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

Job ID: 380-43372-1

Client Sample ID: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-43372-1

Date Collected: 04/11/23 10:10

Matrix: Drinking Water

Date Received: 04/12/23 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		04/13/23 00:00	04/26/23 14:00	1
Phenanthrene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 14:00	1
Pyrene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 14:00	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	90		27 - 133				04/13/23 00:00	04/26/23 14:00	1
(d10-Phenanthrene)	95		43 - 129				04/13/23 00:00	04/26/23 14:00	1
(d12-Chrysene)	95		52 - 144				04/13/23 00:00	04/26/23 14:00	1
(d12-Perylene)	88		36 - 161				04/13/23 00:00	04/26/23 14:00	1
(d8-Naphthalene)	70		25 - 125				04/13/23 00:00	04/26/23 14:00	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GASOLINE	ND	U	0.020		mg/L			04/14/23 16:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
BROMOFLUOROBENZENE	85		60 - 140					04/14/23 16:16	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	0.029		mg/L			04/18/23 17:36	1
JP5	ND	U	0.058		mg/L			04/18/23 17:36	1
JP8	ND	U	0.058		mg/L			04/18/23 17:36	1
MOTOR OIL	ND	U	0.058		mg/L			04/18/23 17:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
BROMOBENZENE	75		60 - 130					04/18/23 17:36	1
HEXACOSANE	102		60 - 130					04/18/23 17:36	1

Client Sample ID: TB: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-43372-2

Date Collected: 04/11/23 10:10

Matrix: Water

Date Received: 04/12/23 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	0.020		mg/L			04/14/23 17:28	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
BROMOFLUOROBENZENE	84		60 - 140					04/14/23 17:28	1

Client Sample ID: FB: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-43372-3

Date Collected: 04/11/23 10:10

Matrix: Water

Date Received: 04/12/23 10:00

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafuoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:56	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:56	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:56	1

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Client Sample Results

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

Job ID: 380-43372-1

Client Sample ID: FB: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-43372-3

Date Collected: 04/11/23 10:10

Matrix: Water

Date Received: 04/12/23 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		05/08/23 12:55	05/10/23 22:56	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:56	1
Perfluorodecanoic acid (PFDA)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:56	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:56	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:56	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:56	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:56	1
Perfluorononanoic acid (PFNA)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:56	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:56	1
Perfluorooctanoic acid (PFOA)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:56	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:56	1
Perfluorobutanoic acid (PFBA)	ND	B	2.0	ng/L		05/08/23 12:55	05/10/23 22:56	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:56	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:56	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:56	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:56	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:56	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:56	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:56	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:56	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:56	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 22:56	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	106		50 - 200	05/08/23 12:55	05/10/23 22:56	1
13C6 PFDA	104		50 - 200	05/08/23 12:55	05/10/23 22:56	1
13C5 PFHxA	106		50 - 200	05/08/23 12:55	05/10/23 22:56	1
13C4 PFHpA	106		50 - 200	05/08/23 12:55	05/10/23 22:56	1
13C8 PFOA	103		50 - 200	05/08/23 12:55	05/10/23 22:56	1
13C9 PFNA	107		50 - 200	05/08/23 12:55	05/10/23 22:56	1
13C7 PFUnA	102		50 - 200	05/08/23 12:55	05/10/23 22:56	1
13C2 PFDoA	101		50 - 200	05/08/23 12:55	05/10/23 22:56	1
13C4 PFBA	102		50 - 200	05/08/23 12:55	05/10/23 22:56	1
13C5 PFPeA	106		50 - 200	05/08/23 12:55	05/10/23 22:56	1
13C3 PFBS	105		50 - 200	05/08/23 12:55	05/10/23 22:56	1
13C3 PFHxS	101		50 - 200	05/08/23 12:55	05/10/23 22:56	1
13C8 PFOS	102		50 - 200	05/08/23 12:55	05/10/23 22:56	1
13C2-4:2-FTS	119		50 - 200	05/08/23 12:55	05/10/23 22:56	1
13C2-6:2-FTS	105		50 - 200	05/08/23 12:55	05/10/23 22:56	1
13C2-8:2-FTS	107		50 - 200	05/08/23 12:55	05/10/23 22:56	1

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Client Sample Results

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

Job ID: 380-43372-1

Client Sample ID: FB: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-43372-3

Date Collected: 04/11/23 10:10

Matrix: Water

Date Received: 04/12/23 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		04/17/23 08:00	04/20/23 10:51	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	ng/L		04/17/23 08:00	04/20/23 10:51	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	ng/L		04/17/23 08:00	04/20/23 10:51	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		2.0	ng/L		04/17/23 08:00	04/20/23 10:51	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		2.0	ng/L		04/17/23 08:00	04/20/23 10:51	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	ng/L		04/17/23 08:00	04/20/23 10:51	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	ng/L		04/17/23 08:00	04/20/23 10:51	1
Perfluorooctanoic acid (PFOA)	ND		2.0	ng/L		04/17/23 08:00	04/20/23 10:51	1
Perfluorodecanoic acid (PFDA)	ND		2.0	ng/L		04/17/23 08:00	04/20/23 10:51	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	ng/L		04/17/23 08:00	04/20/23 10:51	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	ng/L		04/17/23 08:00	04/20/23 10:51	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	ng/L		04/17/23 08:00	04/20/23 10:51	1
Perfluorononanoic acid (PFNA)	ND		2.0	ng/L		04/17/23 08:00	04/20/23 10:51	1
Perfluorotetradecanoic acid (PFTA)	ND		2.0	ng/L		04/17/23 08:00	04/20/23 10:51	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	ng/L		04/17/23 08:00	04/20/23 10:51	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		2.0	ng/L		04/17/23 08:00	04/20/23 10:51	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		2.0	ng/L		04/17/23 08:00	04/20/23 10:51	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	ng/L		04/17/23 08:00	04/20/23 10:51	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	103		70 - 130			04/17/23 08:00	04/20/23 10:51	1
13C2 PFHxA	115		70 - 130			04/17/23 08:00	04/20/23 10:51	1
13C2 PFDA	109		70 - 130			04/17/23 08:00	04/20/23 10:51	1
13C3-GenX	105		70 - 130			04/17/23 08:00	04/20/23 10:51	1

Action Limit Summary

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

Job ID: 380-43372-1

Client Sample ID: AIEA GULCH WELLS PUMP 2
PWSID Number: HI0000331

Lab Sample ID: 380-43372-1

Compliance Check

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

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

Surrogate Summary

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

Job ID: 380-43372-1

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)
380-43372-1	AIEA GULCH WELLS PUMP 2	95	96	86

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)
380-43524-B-1-B DU	Duplicate	95	101	87
380-43158-AJ-1-A MS	Matrix Spike	94	105	93
LCS 380-36672/3-A	Lab Control Sample	95	102	89
LCSD 380-36672/4-A	Lab Control Sample Dup	93	106	90
MB 380-36672/1-A	Method Blank	96	94	80
MRL 380-36672/2-A	Lab Control Sample	97	99	86

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)
380-43372-1	AIEA GULCH WELLS PUMP 2	105	98	96	93

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)
380-43372-3	FB: AIEA GULCH WELLS PUMF	103	115	109	105
380-43533-D-1-A MS	Matrix Spike	100	112	110	108
380-43533-D-1-B MSD	Matrix Spike Duplicate	101	119	112	115
380-43533-F-1-B DU	Duplicate	101	113	106	110
LCS 380-36947/26-A	Lab Control Sample	100	120	106	111
LCSD 380-36947/27-A	Lab Control Sample Dup	99	121	113	113
MBL 380-36947/24-A	Method Blank	100	103	104	95

Surrogate Summary

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

Job ID: 380-43372-1

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

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)
MRL 380-36947/25-A	Lab Control Sample	99	107	101	98

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)
105106-B1	Method Blank	97	99	97	86	94
105106-BS1	Lab Control Sample	85	95	98	69	92
105106-BS2	Lab Control Sample Dup	84	92	93	74	88

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)
380-43372-1	AIEA GULCH WELLS PUMP 2	90	95	95	70	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)
380-43372-1	AIEA GULCH WELLS PUMP 2	85

Surrogate Legend

BFB = BROMOFLUOROBENZENE

Surrogate Summary

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

Job ID: 380-43372-1

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

Matrix: WATER

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB	
23VG39D07B	Method Blank		
Surrogate Legend			
BFB = BROMOFLUOROBENZENE			

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

Matrix: WATER

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB (70-130)	
23VG39D07C	LCD	113	
23VG39D07L	Lab Control Sample	114	
Surrogate Legend			
BFB = BROMOFLUOROBENZENE			

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB (60-140)	
380-43372-2	TB: AIEA GULCH WELLS PUMF	84	
Surrogate Legend			
BFB = BROMOFLUOROBENZENE			

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

Matrix: Drinking Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BB (60-130)	XACOSAI (60-130)	
380-43372-1	AIEA GULCH WELLS PUMP 2	75	102	
Surrogate Legend				
BB = BROMOBENZENE				
HEXACOSANE = HEXACOSANE				

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

Matrix: WATER

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BB (60-130)	XACOSAI (60-130)	
23DSD020WL	Lab Control Sample	80	94	
23J5D020WL	Lab Control Sample	75	93	
23J8D020WL	Lab Control Sample	92	92	
Surrogate Legend				
BB = BROMOBENZENE				
HEXACOSANE = HEXACOSANE				

Surrogate Summary

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

Job ID: 380-43372-1

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
23DSD020WB	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: 380-43372-1

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)	PFDoA (50-200)
380-43372-1	AIEA GULCH WELLS PUMP 2	94	97	94	93	100	105	99	97
380-43372-1 MS	AIEA GULCH WELLS PUMP 2	88	95	88	90	97	104	96	96
380-43372-1 MSD	AIEA GULCH WELLS PUMP 2	100	102	97	97	106	106	103	100

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)
380-43372-1	AIEA GULCH WELLS PUMP 2	103	105	110	103	102	114	106	102
380-43372-1 MS	AIEA GULCH WELLS PUMP 2	93	93	107	100	104	106	109	114
380-43372-1 MSD	AIEA GULCH WELLS PUMP 2	99	103	109	103	105	116	108	104

Surrogate Legend

- 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

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)	PFDoA (50-200)
380-43372-3	FB: AIEA GULCH WELLS PUMI	106	104	106	106	103	107	102	101
LCS 380-39424/25-A	Lab Control Sample	104	103	103	101	105	105	104	103
LCSD 380-39424/26-A	Lab Control Sample Dup	99	100	96	97	99	101	95	95
MBL 380-39424/23-A	Method Blank	94	100	96	100	103	103	98	94
MRL 380-39424/24-A	Lab Control Sample	98	98	100	100	104	107	99	100

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)
380-43372-3	FB: AIEA GULCH WELLS PUMI	102	106	105	101	102	119	105	107
LCS 380-39424/25-A	Lab Control Sample	103	104	107	109	100	112	106	107
LCSD 380-39424/26-A	Lab Control Sample Dup	100	101	104	100	99	109	108	103
MBL 380-39424/23-A	Method Blank	101	104	107	102	100	111	103	98
MRL 380-39424/24-A	Lab Control Sample	108	103	108	105	103	118	111	108

Surrogate Legend

- HFPODA = 13C3 HFPO-DA

Isotope Dilution Summary

Job ID: 380-43372-1

Client: City & County of Honolulu

Project/Site: RED-HILL

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

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QC Sample Results

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

Job ID: 380-43372-1

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

Lab Sample ID: MB 380-36672/1-A
Matrix: Water
Analysis Batch: 36974

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 36672

Analyte	MB	MB	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
2,4'-DDD	ND		0.099	ug/L		04/14/23 08:00	04/17/23 13:20	1
2,4'-DDE	ND		0.099	ug/L		04/14/23 08:00	04/17/23 13:20	1
2,4'-DDT	ND		0.099	ug/L		04/14/23 08:00	04/17/23 13:20	1
2,4-Dinitrotoluene	ND		0.099	ug/L		04/14/23 08:00	04/17/23 13:20	1
2,6-Dinitrotoluene	ND		0.099	ug/L		04/14/23 08:00	04/17/23 13:20	1
4,4'-DDD	ND		0.099	ug/L		04/14/23 08:00	04/17/23 13:20	1
4,4'-DDE	ND		0.099	ug/L		04/14/23 08:00	04/17/23 13:20	1
4,4'-DDT	ND		0.099	ug/L		04/14/23 08:00	04/17/23 13:20	1
Acenaphthene	ND		0.099	ug/L		04/14/23 08:00	04/17/23 13:20	1
Acenaphthylene	ND		0.099	ug/L		04/14/23 08:00	04/17/23 13:20	1
Acetochlor	ND		0.099	ug/L		04/14/23 08:00	04/17/23 13:20	1
Alachlor	ND		0.050	ug/L		04/14/23 08:00	04/17/23 13:20	1
alpha-BHC	ND		0.099	ug/L		04/14/23 08:00	04/17/23 13:20	1
alpha-Chlordane	ND		0.050	ug/L		04/14/23 08:00	04/17/23 13:20	1
Anthracene	ND		0.020	ug/L		04/14/23 08:00	04/17/23 13:20	1
Atrazine	ND		0.050	ug/L		04/14/23 08:00	04/17/23 13:20	1
Benz(a)anthracene	ND		0.050	ug/L		04/14/23 08:00	04/17/23 13:20	1
Benzo[a]pyrene	ND		0.020	ug/L		04/14/23 08:00	04/17/23 13:20	1
Benzo[b]fluoranthene	ND		0.020	ug/L		04/14/23 08:00	04/17/23 13:20	1
Benzo[g,h,i]perylene	ND		0.050	ug/L		04/14/23 08:00	04/17/23 13:20	1
Benzo[k]fluoranthene	ND		0.020	ug/L		04/14/23 08:00	04/17/23 13:20	1
beta-BHC	ND		0.099	ug/L		04/14/23 08:00	04/17/23 13:20	1
Bromacil	ND		0.099	ug/L		04/14/23 08:00	04/17/23 13:20	1
Butachlor	ND		0.050	ug/L		04/14/23 08:00	04/17/23 13:20	1
Butylbenzylphthalate	ND		0.50	ug/L		04/14/23 08:00	04/17/23 13:20	1
Caffeine	ND		0.050	ug/L		04/14/23 08:00	04/17/23 13:20	1
Chlorobenzilate	ND		0.099	ug/L		04/14/23 08:00	04/17/23 13:20	1
Chloroneb	ND		0.099	ug/L		04/14/23 08:00	04/17/23 13:20	1
Chlorothalonil (Draconil, Bravo)	ND		0.099	ug/L		04/14/23 08:00	04/17/23 13:20	1
Chlorpyrifos	ND		0.050	ug/L		04/14/23 08:00	04/17/23 13:20	1
Chrysene	ND		0.020	ug/L		04/14/23 08:00	04/17/23 13:20	1
delta-BHC	ND		0.099	ug/L		04/14/23 08:00	04/17/23 13:20	1
Di(2-ethylhexyl)adipate	ND		0.60	ug/L		04/14/23 08:00	04/17/23 13:20	1
Bis(2-ethylhexyl) phthalate	ND		0.60	ug/L		04/14/23 08:00	04/17/23 13:20	1
Diazinon (Qualitative)	ND		0.099	ug/L		04/14/23 08:00	04/17/23 13:20	1
Dibenz(a,h)anthracene	ND		0.050	ug/L		04/14/23 08:00	04/17/23 13:20	1
Diclorvos (DDVP)	ND		0.050	ug/L		04/14/23 08:00	04/17/23 13:20	1
Dieldrin	ND		0.20	ug/L		04/14/23 08:00	04/17/23 13:20	1
Diethylphthalate	ND		0.50	ug/L		04/14/23 08:00	04/17/23 13:20	1
Dimethoate	ND		0.099	ug/L		04/14/23 08:00	04/17/23 13:20	1
Dimethylphthalate	ND		0.50	ug/L		04/14/23 08:00	04/17/23 13:20	1
Di-n-butyl phthalate	ND		0.99	ug/L		04/14/23 08:00	04/17/23 13:20	1
Di-n-octyl phthalate	ND		0.099	ug/L		04/14/23 08:00	04/17/23 13:20	1
Endosulfan I (Alpha)	ND		0.099	ug/L		04/14/23 08:00	04/17/23 13:20	1
Endosulfan II (Beta)	ND		0.099	ug/L		04/14/23 08:00	04/17/23 13:20	1
Endosulfan sulfate	ND		0.099	ug/L		04/14/23 08:00	04/17/23 13:20	1
Endrin	ND		0.099	ug/L		04/14/23 08:00	04/17/23 13:20	1
Endrin aldehyde	ND		0.099	ug/L		04/14/23 08:00	04/17/23 13:20	1

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-43372-1

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

Lab Sample ID: MB 380-36672/1-A
Matrix: Water
Analysis Batch: 36974

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 36672

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
EPTC	ND		0.099	ug/L		04/14/23 08:00	04/17/23 13:20	1
Fluoranthene	ND		0.099	ug/L		04/14/23 08:00	04/17/23 13:20	1
Fluorene	ND		0.050	ug/L		04/14/23 08:00	04/17/23 13:20	1
gamma-Chlordane	ND		0.050	ug/L		04/14/23 08:00	04/17/23 13:20	1
Heptachlor	ND		0.040	ug/L		04/14/23 08:00	04/17/23 13:20	1
Heptachlor epoxide (isomer B)	ND		0.050	ug/L		04/14/23 08:00	04/17/23 13:20	1
Hexachlorobenzene	ND		0.050	ug/L		04/14/23 08:00	04/17/23 13:20	1
Hexachlorocyclopentadiene	ND		0.050	ug/L		04/14/23 08:00	04/17/23 13:20	1
Indeno[1,2,3-cd]pyrene	ND		0.050	ug/L		04/14/23 08:00	04/17/23 13:20	1
Isophorone	ND		0.50	ug/L		04/14/23 08:00	04/17/23 13:20	1
Lindane	ND		0.040	ug/L		04/14/23 08:00	04/17/23 13:20	1
Malathion	ND		0.099	ug/L		04/14/23 08:00	04/17/23 13:20	1
Methoxychlor	ND		0.099	ug/L		04/14/23 08:00	04/17/23 13:20	1
Metolachlor	ND		0.050	ug/L		04/14/23 08:00	04/17/23 13:20	1
Metribuzin	ND		0.050	ug/L		04/14/23 08:00	04/17/23 13:20	1
Molinate	ND		0.099	ug/L		04/14/23 08:00	04/17/23 13:20	1
Naphthalene	ND		0.30	ug/L		04/14/23 08:00	04/17/23 13:20	1
Parathion	ND		0.099	ug/L		04/14/23 08:00	04/17/23 13:20	1
Pendimethalin (Penoxaline)	ND		0.099	ug/L		04/14/23 08:00	04/17/23 13:20	1
Total Permethrin (mixed isomers)	ND		0.20	ug/L		04/14/23 08:00	04/17/23 13:20	1
Phenanthrene	ND		0.040	ug/L		04/14/23 08:00	04/17/23 13:20	1
Propachlor	ND		0.050	ug/L		04/14/23 08:00	04/17/23 13:20	1
Pyrene	ND		0.050	ug/L		04/14/23 08:00	04/17/23 13:20	1
Simazine	ND		0.050	ug/L		04/14/23 08:00	04/17/23 13:20	1
Terbacil	ND		0.099	ug/L		04/14/23 08:00	04/17/23 13:20	1
Terbutylazine	ND		0.099	ug/L		04/14/23 08:00	04/17/23 13:20	1
Thiobencarb	ND		0.20	ug/L		04/14/23 08:00	04/17/23 13:20	1
trans-Nonachlor	ND		0.050	ug/L		04/14/23 08:00	04/17/23 13:20	1
Trifluralin	ND		0.099	ug/L		04/14/23 08:00	04/17/23 13:20	1

<i>Tentatively Identified Compound</i>	MB Est. Result	MB Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Unknown	0.829	T J	ug/L		4.01	N/A	04/14/23 08:00	04/17/23 13:20	1
Unknown	0.667	T J	ug/L		5.94	N/A	04/14/23 08:00	04/17/23 13:20	1
Unknown	0.605	T J	ug/L		6.65	N/A	04/14/23 08:00	04/17/23 13:20	1
Unknown	0.609	T J	ug/L		7.70	N/A	04/14/23 08:00	04/17/23 13:20	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	96		70 - 130	04/14/23 08:00	04/17/23 13:20	1
Triphenylphosphate	94		70 - 130	04/14/23 08:00	04/17/23 13:20	1
Perylene-d12	80		70 - 130	04/14/23 08:00	04/17/23 13:20	1

Lab Sample ID: LCS 380-36672/3-A
Matrix: Water
Analysis Batch: 36974

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 36672

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4'-DDD	1.99	1.82		ug/L		92	70 - 130
2,4'-DDE	1.99	1.85		ug/L		93	70 - 130

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-43372-1

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

Lab Sample ID: LCS 380-36672/3-A
Matrix: Water
Analysis Batch: 36974

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 36672

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4'-DDT	1.99	2.01		ug/L		101	70 - 130
2,4-Dinitrotoluene	1.99	2.04		ug/L		103	70 - 130
2,6-Dinitrotoluene	1.99	1.82		ug/L		92	70 - 130
4,4'-DDD	1.99	2.00		ug/L		101	70 - 130
4,4'-DDE	1.99	2.06		ug/L		104	70 - 130
4,4'-DDT	1.99	2.05		ug/L		103	70 - 130
Acenaphthene	1.99	1.95		ug/L		98	70 - 130
Acenaphthylene	1.99	1.89		ug/L		95	70 - 130
Acetochlor	1.99	2.06		ug/L		103	70 - 130
Alachlor	1.99	2.10		ug/L		105	70 - 130
alpha-BHC	1.99	1.95		ug/L		98	70 - 130
alpha-Chlordane	1.99	2.07		ug/L		104	70 - 130
Anthracene	1.99	1.86		ug/L		93	70 - 130
Atrazine	1.99	2.18		ug/L		110	70 - 130
Benz(a)anthracene	1.99	1.98		ug/L		100	70 - 130
Benzo[a]pyrene	1.99	1.95		ug/L		98	70 - 130
Benzo[b]fluoranthene	1.99	2.08		ug/L		105	70 - 130
Benzo[g,h,i]perylene	1.99	2.12		ug/L		107	70 - 130
Benzo[k]fluoranthene	1.99	2.07		ug/L		104	70 - 130
beta-BHC	1.99	1.99		ug/L		100	70 - 130
Bromacil	1.99	2.32		ug/L		117	70 - 130
Butachlor	1.99	2.22		ug/L		112	70 - 130
Butylbenzylphthalate	1.99	2.25		ug/L		113	70 - 130
Caffeine	1.99	1.32		ug/L		67	45 - 137
Chlorobenzilate	1.99	2.08		ug/L		105	70 - 130
Chloroneb	1.99	1.98		ug/L		100	70 - 130
Chlorothalonil (Draconil, Bravo)	1.99	2.03		ug/L		102	70 - 130
Chlorpyrifos	1.99	2.09		ug/L		105	70 - 130
Chrysene	1.99	2.07		ug/L		104	70 - 130
delta-BHC	1.99	1.96		ug/L		99	70 - 130
Di(2-ethylhexyl)adipate	1.99	2.23		ug/L		112	70 - 130
Bis(2-ethylhexyl) phthalate	1.99	2.01		ug/L		101	70 - 130
Diazinon (Qualitative)	1.99	1.87		ug/L		94	15 - 132
Dibenz(a,h)anthracene	1.99	2.18		ug/L		110	70 - 130
Diclorvos (DDVP)	1.99	2.30		ug/L		116	70 - 130
Dieldrin	1.99	1.85		ug/L		93	70 - 130
Diethylphthalate	1.99	2.07		ug/L		104	70 - 130
Dimethoate	1.99	0.736		ug/L		37	35 - 100
Dimethylphthalate	1.99	2.05		ug/L		103	70 - 130
Di-n-butyl phthalate	3.97	4.33		ug/L		109	70 - 130
Di-n-octyl phthalate	1.99	1.95		ug/L		98	70 - 130
Endosulfan I (Alpha)	1.99	1.81		ug/L		91	70 - 130
Endosulfan II (Beta)	1.99	2.04		ug/L		103	70 - 130
Endosulfan sulfate	1.99	1.86		ug/L		94	70 - 130
Endrin	1.99	2.21		ug/L		111	70 - 130
Endrin aldehyde	1.99	1.83		ug/L		92	70 - 130
EPTC	1.99	2.15		ug/L		108	70 - 130
Fluoranthene	1.99	2.08		ug/L		105	70 - 130
Fluorene	1.99	2.04		ug/L		103	70 - 130

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-43372-1

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

Lab Sample ID: LCS 380-36672/3-A
Matrix: Water
Analysis Batch: 36974

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 36672

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
gamma-Chlordane	1.99	2.13		ug/L		107	70 - 130
Heptachlor	1.99	2.14		ug/L		108	70 - 130
Heptachlor epoxide (isomer B)	1.99	2.05		ug/L		103	70 - 130
Hexachlorobenzene	1.99	1.93		ug/L		97	70 - 130
Hexachlorocyclopentadiene	1.99	2.06		ug/L		104	70 - 130
Indeno[1,2,3-cd]pyrene	1.99	2.20		ug/L		111	70 - 130
Isophorone	1.99	2.17		ug/L		109	70 - 130
Lindane	1.99	2.04		ug/L		103	70 - 130
Malathion	1.99	2.13		ug/L		107	70 - 130
Methoxychlor	1.99	2.30		ug/L		116	70 - 130
Metolachlor	1.99	2.16		ug/L		109	70 - 130
Metribuzin	1.99	2.12		ug/L		107	70 - 130
Molinate	1.99	2.20		ug/L		111	70 - 130
Naphthalene	1.99	2.00		ug/L		101	70 - 130
Parathion	1.99	2.49		ug/L		125	70 - 130
Pendimethalin (Penoxaline)	1.99	2.07		ug/L		104	70 - 130
Phenanthrene	1.99	1.91		ug/L		96	70 - 130
Propachlor	1.99	2.33		ug/L		118	70 - 130
Pyrene	1.99	2.12		ug/L		107	70 - 130
Simazine	1.99	2.23		ug/L		112	70 - 130
Terbacil	1.99	2.58		ug/L		130	70 - 130
Terbutylazine	1.99	2.09		ug/L		105	70 - 130
Thiobencarb	1.99	2.27		ug/L		114	70 - 130
trans-Nonachlor	1.99	2.10		ug/L		106	70 - 130
Trifluralin	1.99	1.95		ug/L		98	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Nitro-m-xylene	95		70 - 130
Triphenylphosphate	102		70 - 130
Perylene-d12	89		70 - 130

Lab Sample ID: LCSD 380-36672/4-A
Matrix: Water
Analysis Batch: 36974

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 36672

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2,4'-DDD	1.99	1.98		ug/L		99	70 - 130	8	20
2,4'-DDE	1.99	2.03		ug/L		102	70 - 130	9	20
2,4'-DDT	1.99	2.16		ug/L		109	70 - 130	7	20
2,4-Dinitrotoluene	1.99	2.25		ug/L		113	70 - 130	10	20
2,6-Dinitrotoluene	1.99	1.96		ug/L		98	70 - 130	7	20
4,4'-DDD	1.99	2.15		ug/L		108	70 - 130	7	20
4,4'-DDE	1.99	2.23		ug/L		112	70 - 130	8	20
4,4'-DDT	1.99	2.21		ug/L		111	70 - 130	7	20
Acenaphthene	1.99	1.99		ug/L		100	70 - 130	2	20
Acenaphthylene	1.99	1.89		ug/L		95	70 - 130	0	20
Acetochlor	1.99	2.25		ug/L		113	70 - 130	9	20
Alachlor	1.99	2.26		ug/L		114	70 - 130	8	20

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-43372-1

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

Lab Sample ID: LCSD 380-36672/4-A
Matrix: Water
Analysis Batch: 36974

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 36672

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	RPD Limit
							Limits	RPD		
alpha-BHC	1.99	2.17		ug/L		109	70 - 130	11	20	
alpha-Chlordane	1.99	2.30		ug/L		116	70 - 130	10	20	
Anthracene	1.99	1.94		ug/L		97	70 - 130	4	20	
Atrazine	1.99	2.59		ug/L		130	70 - 130	17	20	
Benz(a)anthracene	1.99	2.12		ug/L		106	70 - 130	7	20	
Benzo[a]pyrene	1.99	2.08		ug/L		104	70 - 130	6	20	
Benzo[b]fluoranthene	1.99	2.17		ug/L		109	70 - 130	4	20	
Benzo[g,h,i]perylene	1.99	2.28		ug/L		115	70 - 130	7	20	
Benzo[k]fluoranthene	1.99	2.13		ug/L		107	70 - 130	3	20	
beta-BHC	1.99	2.31		ug/L		116	70 - 130	15	20	
Bromacil	1.99	2.55		ug/L		128	70 - 130	9	20	
Butachlor	1.99	2.42		ug/L		122	70 - 130	9	20	
Butylbenzylphthalate	1.99	2.44		ug/L		122	70 - 130	8	20	
Caffeine	1.99	1.58		ug/L		79	45 - 137	17	20	
Chlorobenzilate	1.99	2.26		ug/L		114	70 - 130	9	20	
Chloroneb	1.99	2.12		ug/L		106	70 - 130	7	20	
Chlorothalonil (Draconil, Bravo)	1.99	2.22		ug/L		112	70 - 130	9	20	
Chlorpyrifos	1.99	2.26		ug/L		113	70 - 130	8	20	
Chrysene	1.99	2.07		ug/L		104	70 - 130	0	20	
delta-BHC	1.99	2.09		ug/L		105	70 - 130	6	20	
Di(2-ethylhexyl)adipate	1.99	2.40		ug/L		121	70 - 130	7	20	
Bis(2-ethylhexyl) phthalate	1.99	2.03		ug/L		102	70 - 130	1	20	
Diazinon (Qualitative)	1.99	2.26		ug/L		113	15 - 132	19	20	
Dibenz(a,h)anthracene	1.99	2.27		ug/L		114	70 - 130	4	20	
Diclorvos (DDVP)	1.99	2.25		ug/L		113	70 - 130	2	20	
Dieldrin	1.99	2.02		ug/L		101	70 - 130	8	20	
Diethylphthalate	1.99	2.28		ug/L		114	70 - 130	9	20	
Dimethoate	1.99	1.67	*1	ug/L		84	35 - 100	77	20	
Dimethylphthalate	1.99	2.15		ug/L		108	70 - 130	5	20	
Di-n-butyl phthalate	3.98	4.50		ug/L		113	70 - 130	4	20	
Di-n-octyl phthalate	1.99	1.96		ug/L		98	70 - 130	1	20	
Endosulfan I (Alpha)	1.99	2.05		ug/L		103	70 - 130	13	20	
Endosulfan II (Beta)	1.99	2.19		ug/L		110	70 - 130	7	20	
Endosulfan sulfate	1.99	2.00		ug/L		100	70 - 130	7	20	
Endrin	1.99	2.50		ug/L		126	70 - 130	12	20	
Endrin aldehyde	1.99	2.06		ug/L		103	70 - 130	11	20	
EPTC	1.99	2.15		ug/L		108	70 - 130	0	20	
Fluoranthene	1.99	2.25		ug/L		113	70 - 130	8	20	
Fluorene	1.99	2.14		ug/L		107	70 - 130	4	20	
gamma-Chlordane	1.99	2.33		ug/L		117	70 - 130	9	20	
Heptachlor	1.99	2.25		ug/L		113	70 - 130	5	20	
Heptachlor epoxide (isomer B)	1.99	2.28		ug/L		115	70 - 130	11	20	
Hexachlorobenzene	1.99	2.10		ug/L		105	70 - 130	8	20	
Hexachlorocyclopentadiene	1.99	1.99		ug/L		100	70 - 130	3	20	
Indeno[1,2,3-cd]pyrene	1.99	2.34		ug/L		117	70 - 130	6	20	
Isophorone	1.99	2.16		ug/L		109	70 - 130	0	20	
Lindane	1.99	2.36		ug/L		118	70 - 130	14	20	
Malathion	1.99	2.31		ug/L		116	70 - 130	8	20	
Methoxychlor	1.99	2.40		ug/L		121	70 - 130	4	20	

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QC Sample Results

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

Job ID: 380-43372-1

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

Lab Sample ID: LCSD 380-36672/4-A
Matrix: Water
Analysis Batch: 36974

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 36672

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Metolachlor	1.99	2.35		ug/L		118	70 - 130	9	20
Metribuzin	1.99	2.40		ug/L		121	70 - 130	12	20
Molinate	1.99	2.28		ug/L		115	70 - 130	4	20
Naphthalene	1.99	2.00		ug/L		101	70 - 130	0	20
Parathion	1.99	2.73	*+	ug/L		137	70 - 130	9	20
Pendimethalin (Penoxaline)	1.99	2.28		ug/L		115	70 - 130	10	20
Phenanthrene	1.99	1.97		ug/L		99	70 - 130	3	20
Propachlor	1.99	2.62	*+	ug/L		132	70 - 130	12	20
Pyrene	1.99	2.32		ug/L		116	70 - 130	9	20
Simazine	1.99	2.66	*+	ug/L		134	70 - 130	18	20
Terbacil	1.99	2.71	*+	ug/L		136	70 - 130	5	20
Terbutylazine	1.99	2.43		ug/L		122	70 - 130	15	20
Thiobencarb	1.99	2.45		ug/L		123	70 - 130	8	20
trans-Nonachlor	1.99	2.32		ug/L		117	70 - 130	10	20
Trifluralin	1.99	2.19		ug/L		110	70 - 130	12	20

Surrogate	LCSD %Recovery	LCSD Qualifier	LCSD Limits
2-Nitro-m-xylene	93		70 - 130
Triphenylphosphate	106		70 - 130
Perylene-d12	90		70 - 130

Lab Sample ID: MRL 380-36672/2-A
Matrix: Water
Analysis Batch: 36974

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 36672

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
2,4'-DDD	0.0993	0.137		ug/L		138	50 - 150
2,4'-DDE	0.0993	0.0944	J	ug/L		95	50 - 150
2,4'-DDT	0.0993	0.0903	J	ug/L		91	50 - 150
2,4-Dinitrotoluene	0.0993	0.0808	J	ug/L		81	50 - 150
2,6-Dinitrotoluene	0.0993	0.0808	J	ug/L		81	50 - 150
4,4'-DDD	0.0993	0.0955	J	ug/L		96	50 - 150
4,4'-DDE	0.0993	0.0809	J	ug/L		81	50 - 150
4,4'-DDT	0.0993	0.0964	J	ug/L		97	50 - 150
Acenaphthene	0.0993	0.0964	J	ug/L		97	50 - 150
Acenaphthylene	0.0993	0.0799	J	ug/L		80	50 - 150
Acetochlor	0.0497	0.0444	J	ug/L		89	50 - 150
Alachlor	0.0497	0.0548		ug/L		110	50 - 150
alpha-BHC	0.0993	0.0999		ug/L		101	50 - 150
alpha-Chlordane	0.0248	ND		ug/L		96	50 - 150
Anthracene	0.0199	0.0193	J	ug/L		97	50 - 150
Atrazine	0.0497	ND		ug/L		94	50 - 150
Benz(a)anthracene	0.0497	0.0417	J	ug/L		84	50 - 150
Benzo[a]pyrene	0.0199	0.0165	J	ug/L		83	50 - 150
Benzo[b]fluoranthene	0.0199	0.0186	J	ug/L		94	50 - 150
Benzo[g,h,i]perylene	0.0497	0.0484	J	ug/L		98	50 - 150
Benzo[k]fluoranthene	0.0199	0.0174	J	ug/L		87	50 - 150
beta-BHC	0.0993	0.0983	J	ug/L		99	50 - 150

QC Sample Results

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

Job ID: 380-43372-1

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

Lab Sample ID: MRL 380-36672/2-A
Matrix: Water
Analysis Batch: 36974

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 36672

Analyte	Spike Added	MRL	MRL	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Bromacil	0.0993	0.106		ug/L		107	50 - 150
Butachlor	0.0497	0.0529		ug/L		107	50 - 150
Butylbenzylphthalate	0.149	0.164	J	ug/L		110	50 - 150
Caffeine	0.0497	0.0304	J	ug/L		61	50 - 150
Chlorobenzilate	0.0993	0.0924	J	ug/L		93	50 - 150
Chloroneb	0.0993	0.0945	J	ug/L		95	50 - 150
Chlorothalonil (Draconil, Bravo)	0.0993	0.0867	J	ug/L		87	50 - 150
Chlorpyrifos	0.0497	0.0467	J	ug/L		94	50 - 150
Chrysene	0.0199	0.0196	J	ug/L		99	50 - 150
delta-BHC	0.0993	0.111		ug/L		111	50 - 150
Di(2-ethylhexyl)adipate	0.298	0.366	J	ug/L		123	50 - 150
Bis(2-ethylhexyl) phthalate	0.596	0.643		ug/L		108	50 - 150
Diazinon (Qualitative)	0.0993	0.0941	J	ug/L		95	15 - 132
Dibenz(a,h)anthracene	0.0497	0.0384	J	ug/L		77	50 - 150
Diclorvos (DDVP)	0.0497	0.0553		ug/L		111	50 - 150
Dieldrin	0.0993	0.0912	J	ug/L		92	50 - 150
Diethylphthalate	0.149	0.164	J	ug/L		110	50 - 150
Dimethoate	0.0993	0.0369	J	ug/L		37	35 - 100
Dimethylphthalate	0.298	0.290	J	ug/L		97	50 - 150
Di-n-butyl phthalate	0.298	0.350	J	ug/L		118	49 - 243
Di-n-octyl phthalate	0.0993	0.0887	J	ug/L		89	50 - 150
Endosulfan I (Alpha)	0.0993	0.0952	J	ug/L		96	50 - 150
Endosulfan II (Beta)	0.0993	0.0995		ug/L		100	50 - 150
Endosulfan sulfate	0.0993	0.0854	J	ug/L		86	50 - 150
Endrin	0.0993	0.114		ug/L		115	50 - 150
Endrin aldehyde	0.0993	ND		ug/L		83	50 - 150
EPTC	0.0993	0.111		ug/L		112	50 - 150
Fluoranthene	0.0497	0.0513	J	ug/L		103	50 - 150
Fluorene	0.0497	ND		ug/L		100	50 - 150
gamma-Chlordane	0.0248	0.0234	J	ug/L		94	50 - 150
Heptachlor	0.0397	0.0478		ug/L		120	50 - 150
Heptachlor epoxide (isomer B)	0.0497	0.0445	J	ug/L		90	50 - 150
Hexachlorobenzene	0.0497	0.0423	J	ug/L		85	50 - 150
Hexachlorocyclopentadiene	0.0497	0.0470	J	ug/L		95	50 - 150
Indeno[1,2,3-cd]pyrene	0.0497	0.0409	J	ug/L		82	50 - 150
Isophorone	0.0993	0.123	J	ug/L		124	50 - 150
Lindane	0.0397	0.0402		ug/L		101	50 - 150
Malathion	0.0993	0.0918	J	ug/L		92	50 - 150
Methoxychlor	0.0993	0.0980	J	ug/L		99	50 - 150
Metolachlor	0.0497	0.0557		ug/L		112	50 - 150
Metribuzin	0.0497	0.0438	J	ug/L		88	50 - 150
Molinate	0.0993	0.109		ug/L		110	50 - 150
Naphthalene	0.0993	0.117	J	ug/L		118	50 - 150
Parathion	0.0993	0.0868	J	ug/L		87	50 - 150
Pendimethalin (Penoxaline)	0.0993	0.0694	J	ug/L		70	50 - 150
Phenanthrene	0.0199	0.0224	J	ug/L		113	50 - 150
Propachlor	0.0497	0.0555		ug/L		112	50 - 150
Pyrene	0.0497	0.0528		ug/L		106	50 - 150
Simazine	0.0497	0.0542		ug/L		109	50 - 150

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QC Sample Results

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

Job ID: 380-43372-1

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

Lab Sample ID: MRL 380-36672/2-A
Matrix: Water
Analysis Batch: 36974

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 36672

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Terbacil	0.0993	0.123		ug/L		124	50 - 150
Terbutylazine	0.0993	0.0983	J	ug/L		99	50 - 150
Thiobencarb	0.0993	0.115	J	ug/L		115	50 - 150
trans-Nonachlor	0.0248	ND		ug/L		86	50 - 150
Trifluralin	0.0993	0.0738	J	ug/L		74	50 - 150

Surrogate	MRL %Recovery	MRL Qualifier	Limits
2-Nitro-m-xylene	97		70 - 130
Triphenylphosphate	99		70 - 130
Perylene-d12	86		70 - 130

Lab Sample ID: 380-43158-AJ-1-A MS
Matrix: Water
Analysis Batch: 36974

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 36672

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
2,4'-DDD	ND		1.97	1.89		ug/L		96	70 - 130
2,4'-DDE	ND		1.97	1.91		ug/L		97	70 - 130
2,4'-DDT	ND		1.97	2.01		ug/L		102	70 - 130
2,4-Dinitrotoluene	ND		1.97	2.22		ug/L		112	70 - 130
2,6-Dinitrotoluene	ND		1.97	2.03		ug/L		103	70 - 130
4,4'-DDD	ND		1.97	2.03		ug/L		103	70 - 130
4,4'-DDE	ND		1.97	2.10		ug/L		106	70 - 130
4,4'-DDT	ND		1.97	2.05		ug/L		104	70 - 130
Acenaphthene	ND		1.97	1.98		ug/L		101	70 - 130
Acenaphthylene	ND		1.97	1.97		ug/L		100	70 - 130
Acetochlor	ND		1.97	2.15		ug/L		109	70 - 130
Alachlor	ND		1.97	2.17		ug/L		110	70 - 130
alpha-BHC	ND		1.97	2.00		ug/L		101	70 - 130
alpha-Chlordane	ND		1.97	2.19		ug/L		111	70 - 130
Anthracene	ND		1.97	1.70		ug/L		86	70 - 130
Atrazine	ND		1.97	2.22		ug/L		112	70 - 130
Benz(a)anthracene	ND		1.97	1.96		ug/L		99	70 - 130
Benzo[a]pyrene	ND		1.97	1.99		ug/L		101	70 - 130
Benzo[b]fluoranthene	ND		1.97	2.16		ug/L		109	70 - 130
Benzo[g,h,i]perylene	ND		1.97	2.32		ug/L		118	70 - 130
Benzo[k]fluoranthene	ND		1.97	2.14		ug/L		108	70 - 130
beta-BHC	ND		1.97	1.98		ug/L		101	70 - 130
Bromacil	ND		1.97	2.49		ug/L		126	70 - 130
Butachlor	ND		1.97	2.29		ug/L		116	70 - 130
Butylbenzylphthalate	ND		1.97	2.33		ug/L		118	70 - 130
Caffeine	0.075		1.97	1.94		ug/L		94	46 - 144
Chlorobenzilate	ND		1.97	2.21		ug/L		112	70 - 130
Chloroneb	ND		1.97	2.05		ug/L		104	70 - 130
Chlorothalonil (Draconil, Bravo)	ND		1.97	2.11		ug/L		107	70 - 130
Chlorpyrifos	ND		1.97	2.17		ug/L		110	70 - 130
Chrysene	ND		1.97	2.14		ug/L		108	70 - 130
delta-BHC	ND		1.97	1.98		ug/L		101	70 - 130

QC Sample Results

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

Job ID: 380-43372-1

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

Lab Sample ID: 380-43158-AJ-1-A MS
Matrix: Water
Analysis Batch: 36974

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 36672

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec Limits
	Result	Qualifier	Added	Result	Qualifier				
Di(2-ethylhexyl)adipate	ND		1.97	2.30		ug/L		117	70 - 130
Bis(2-ethylhexyl) phthalate	ND		1.97	2.19		ug/L		111	70 - 130
Diazinon (Qualitative)	ND		1.97	2.09		ug/L		106	15 - 132
Dibenz(a,h)anthracene	ND		1.97	2.31		ug/L		117	70 - 130
Diclorvos (DDVP)	ND		1.97	2.35		ug/L		119	70 - 130
Dieldrin	ND		1.97	1.93		ug/L		98	70 - 130
Diethylphthalate	ND		1.97	2.10		ug/L		107	70 - 130
Dimethoate	ND	*1	1.97	1.87		ug/L		95	34 - 111
Dimethylphthalate	ND		1.97	2.11		ug/L		107	70 - 130
Di-n-butyl phthalate	ND		3.95	4.63		ug/L		117	70 - 130
Di-n-octyl phthalate	ND		1.97	2.23		ug/L		113	70 - 130
Endosulfan I (Alpha)	ND		1.97	1.98		ug/L		100	70 - 130
Endosulfan II (Beta)	ND		1.97	2.05		ug/L		104	70 - 130
Endosulfan sulfate	ND		1.97	1.94		ug/L		99	70 - 130
Endrin	ND		1.97	2.38		ug/L		121	70 - 130
Endrin aldehyde	ND		1.97	1.78		ug/L		90	70 - 130
EPTC	ND		1.97	2.28		ug/L		116	70 - 130
Fluoranthene	ND		1.97	2.14		ug/L		108	70 - 130
Fluorene	ND		1.97	2.08		ug/L		105	70 - 130
gamma-Chlordane	ND		1.97	2.25		ug/L		114	70 - 130
Heptachlor	ND		1.97	2.26		ug/L		115	70 - 130
Heptachlor epoxide (isomer B)	ND		1.97	2.21		ug/L		112	70 - 130
Hexachlorobenzene	ND		1.97	2.02		ug/L		102	70 - 130
Hexachlorocyclopentadiene	ND		1.97	2.10		ug/L		107	70 - 130
Indeno[1,2,3-cd]pyrene	ND		1.97	2.39		ug/L		121	70 - 130
Isophorone	ND		1.97	2.18		ug/L		111	70 - 130
Lindane	ND		1.97	2.10		ug/L		106	70 - 130
Malathion	ND		1.97	2.24		ug/L		113	70 - 130
Methoxychlor	ND		1.97	2.50		ug/L		127	70 - 130
Metolachlor	ND		1.97	2.25		ug/L		114	70 - 130
Metribuzin	ND		1.97	2.25		ug/L		114	70 - 130
Molinate	ND		1.97	2.31		ug/L		117	70 - 130
Naphthalene	ND		1.97	2.03		ug/L		103	70 - 130
Parathion	ND	*+ F1	1.97	2.74	F1	ug/L		139	70 - 130
Pendimethalin (Penoxaline)	ND		1.97	2.25		ug/L		114	70 - 130
Phenanthrene	ND		1.97	1.99		ug/L		101	70 - 130
Propachlor	ND	*+	1.97	2.37		ug/L		120	70 - 130
Pyrene	ND		1.97	2.19		ug/L		111	70 - 130
Simazine	ND	*+	1.97	2.24		ug/L		114	70 - 130
Terbacil	ND	*+ F1	1.97	2.65	F1	ug/L		135	70 - 130
Terbutylazine	ND		1.97	2.12		ug/L		108	70 - 130
Thiobencarb	ND		1.97	2.35		ug/L		119	70 - 130
trans-Nonachlor	ND		1.97	2.21		ug/L		112	70 - 130
Trifluralin	ND		1.97	2.07		ug/L		105	70 - 130

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
2-Nitro-m-xylene	94		70 - 130
Triphenylphosphate	105		70 - 130

QC Sample Results

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

Job ID: 380-43372-1

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

Lab Sample ID: 380-43158-AJ-1-A MS
Matrix: Water
Analysis Batch: 36974

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 36672

Surrogate	%Recovery	MS MS Qualifier	Limits
Perylene-d12	93		70 - 130

Lab Sample ID: 380-43524-B-1-B DU
Matrix: Water
Analysis Batch: 36974

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 36672

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
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		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	*1	ND	*1	ug/L		NC	20
Dimethylphthalate	ND		ND		ug/L		NC	20

QC Sample Results

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

Job ID: 380-43372-1

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

Lab Sample ID: 380-43524-B-1-B DU
Matrix: Water
Analysis Batch: 36974

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 36674

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

Surrogate	DU %Recovery	DU Qualifier	Limits
2-Nitro-m-xylene	95		70 - 130
Triphenylphosphate	101		70 - 130
Perylene-d12	87		70 - 130

QC Sample Results

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

Job ID: 380-43372-1

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

Lab Sample ID: MBL 380-39424/23-A
Matrix: Water
Analysis Batch: 39722

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 39424

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 21:40	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 21:40	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 21:40	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 21:40	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 21:40	1
Perfluorodecanoic acid (PFDA)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 21:40	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 21:40	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 21:40	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 21:40	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 21:40	1
Perfluorononanoic acid (PFNA)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 21:40	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 21:40	1
Perfluorooctanoic acid (PFOA)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 21:40	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 21:40	1
Perfluorobutanoic acid (PFBA)	0.797	J B	2.0	ng/L		05/08/23 12:55	05/10/23 21:40	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 21:40	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 21:40	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	0.493	J	2.0	ng/L		05/08/23 12:55	05/10/23 21:40	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 21:40	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	0.416	J	2.0	ng/L		05/08/23 12:55	05/10/23 21:40	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 21:40	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 21:40	1
Perfluoropentanoic acid (PFPeA)	0.422	J	2.0	ng/L		05/08/23 12:55	05/10/23 21:40	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 21:40	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	ng/L		05/08/23 12:55	05/10/23 21:40	1

Isotope Dilution	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	94		50 - 200	05/08/23 12:55	05/10/23 21:40	1
13C6 PFDA	100		50 - 200	05/08/23 12:55	05/10/23 21:40	1
13C5 PFHxA	96		50 - 200	05/08/23 12:55	05/10/23 21:40	1
13C4 PFHpA	100		50 - 200	05/08/23 12:55	05/10/23 21:40	1
13C8 PFOA	103		50 - 200	05/08/23 12:55	05/10/23 21:40	1
13C9 PFNA	103		50 - 200	05/08/23 12:55	05/10/23 21:40	1
13C7 PFUnA	98		50 - 200	05/08/23 12:55	05/10/23 21:40	1
13C2 PFDoA	94		50 - 200	05/08/23 12:55	05/10/23 21:40	1
13C4 PFBA	101		50 - 200	05/08/23 12:55	05/10/23 21:40	1
13C5 PFPeA	104		50 - 200	05/08/23 12:55	05/10/23 21:40	1
13C3 PFBS	107		50 - 200	05/08/23 12:55	05/10/23 21:40	1
13C3 PFHxS	102		50 - 200	05/08/23 12:55	05/10/23 21:40	1

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QC Sample Results

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

Job ID: 380-43372-1

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

Lab Sample ID: MBL 380-39424/23-A
Matrix: Water
Analysis Batch: 39722

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 39424

<i>Isotope Dilution</i>	<i>MBL %Recovery</i>	<i>MBL Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C8 PFOS	100		50 - 200	05/08/23 12:55	05/10/23 21:40	1
13C2-4:2-FTS	111		50 - 200	05/08/23 12:55	05/10/23 21:40	1
13C2-6:2-FTS	103		50 - 200	05/08/23 12:55	05/10/23 21:40	1
13C2-8:2-FTS	98		50 - 200	05/08/23 12:55	05/10/23 21:40	1

Lab Sample ID: LCS 380-39424/25-A
Matrix: Water
Analysis Batch: 39722

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 39424

<i>Analyte</i>	<i>Spike Added</i>	<i>LCS Result</i>	<i>LCS Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	60.0	60.2		ng/L		100	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	60.0	62.1		ng/L		104	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	60.0	57.3		ng/L		96	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	60.0	56.7		ng/L		94	70 - 130
Perfluorobutanesulfonic acid (PFBS)	60.0	54.0		ng/L		90	70 - 130
Perfluorodecanoic acid (PFDA)	60.0	56.0		ng/L		93	70 - 130
Perfluorododecanoic acid (PFDoA)	60.0	56.9		ng/L		95	70 - 130
Perfluoroheptanoic acid (PFHpA)	60.0	53.7		ng/L		90	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	60.0	51.4		ng/L		86	70 - 130
Perfluorohexanoic acid (PFHxA)	60.0	55.1		ng/L		92	70 - 130
Perfluorononanoic acid (PFNA)	60.0	58.3		ng/L		97	70 - 130
Perfluorooctanesulfonic acid (PFOS)	60.0	58.3		ng/L		97	70 - 130
Perfluorooctanoic acid (PFOA)	60.0	56.7		ng/L		95	70 - 130
Perfluoroundecanoic acid (PFUnA)	60.0	55.2		ng/L		92	70 - 130
Perfluorobutanoic acid (PFBA)	60.0	56.6		ng/L		94	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	60.0	58.6		ng/L		98	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	60.0	57.7		ng/L		96	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	60.0	58.3		ng/L		97	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	60.0	59.1		ng/L		99	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	60.0	49.2		ng/L		82	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	60.0	58.7		ng/L		98	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	60.0	58.2		ng/L		97	70 - 130
Perfluoropentanoic acid (PFPeA)	60.0	56.3		ng/L		94	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	60.0	61.1		ng/L		102	70 - 130

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QC Sample Results

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

Job ID: 380-43372-1

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

Lab Sample ID: LCS 380-39424/25-A
Matrix: Water
Analysis Batch: 39722

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 39424

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoropentanesulfonic acid (PFPeS)	60.0	52.3		ng/L		87	70 - 130
LCS LCS							
Isotope Dilution	%Recovery	Qualifier	Limits				
13C3 HFPO-DA	104		50 - 200				
13C6 PFDA	103		50 - 200				
13C5 PFHxA	103		50 - 200				
13C4 PFHpA	101		50 - 200				
13C8 PFOA	105		50 - 200				
13C9 PFNA	105		50 - 200				
13C7 PFUnA	104		50 - 200				
13C2 PFDoA	103		50 - 200				
13C4 PFBA	103		50 - 200				
13C5 PFPeA	104		50 - 200				
13C3 PFBS	107		50 - 200				
13C3 PFHxS	109		50 - 200				
13C8 PFOS	100		50 - 200				
13C2-4:2-FTS	112		50 - 200				
13C2-6:2-FTS	106		50 - 200				
13C2-8:2-FTS	107		50 - 200				

Lab Sample ID: LCSD 380-39424/26-A
Matrix: Water
Analysis Batch: 39722

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 39424

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	60.0	55.6		ng/L		93	70 - 130	8	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	60.0	59.0		ng/L		98	70 - 130	5	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	60.0	56.9		ng/L		95	70 - 130	1	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	60.0	52.7		ng/L		88	70 - 130	7	30
Perfluorobutanesulfonic acid (PFBS)	60.0	54.9		ng/L		92	70 - 130	2	30
Perfluorodecanoic acid (PFDA)	60.0	55.0		ng/L		92	70 - 130	2	30
Perfluorododecanoic acid (PFDoA)	60.0	58.0		ng/L		97	70 - 130	2	30
Perfluoroheptanoic acid (PFHpA)	60.0	57.3		ng/L		96	70 - 130	6	30
Perfluorohexanesulfonic acid (PFHxS)	60.0	56.2		ng/L		94	70 - 130	9	30
Perfluorohexanoic acid (PFHxA)	60.0	56.9		ng/L		95	70 - 130	3	30
Perfluorononanoic acid (PFNA)	60.0	56.4		ng/L		94	70 - 130	3	30
Perfluorooctanesulfonic acid (PFOS)	60.0	55.8		ng/L		93	70 - 130	4	30
Perfluorooctanoic acid (PFOA)	60.0	55.7		ng/L		93	70 - 130	2	30
Perfluoroundecanoic acid (PFUnA)	60.0	56.7		ng/L		95	70 - 130	3	30
Perfluorobutanoic acid (PFBA)	60.0	56.0		ng/L		93	70 - 130	1	30

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-43372-1

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

Lab Sample ID: LCSD 380-39424/26-A
Matrix: Water
Analysis Batch: 39722

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 39424

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	60.0	56.8		ng/L		95	70 - 130	3	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	60.0	59.5		ng/L		99	70 - 130	3	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	60.0	53.5		ng/L		89	70 - 130	9	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	60.0	54.4		ng/L		91	70 - 130	8	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	60.0	49.9		ng/L		83	70 - 130	1	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	60.0	52.2		ng/L		87	70 - 130	12	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	60.0	54.9		ng/L		91	70 - 130	6	30
Perfluoropentanoic acid (PFPeA)	60.0	54.0		ng/L		90	70 - 130	4	30
Perfluoroheptanesulfonic acid (PFHpS)	60.0	57.6		ng/L		96	70 - 130	6	30
Perfluoropentanesulfonic acid (PFPeS)	60.0	56.9		ng/L		95	70 - 130	8	30

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	99		50 - 200
13C6 PFDA	100		50 - 200
13C5 PFHxA	96		50 - 200
13C4 PFHpA	97		50 - 200
13C8 PFOA	99		50 - 200
13C9 PFNA	101		50 - 200
13C7 PFUnA	95		50 - 200
13C2 PFDoA	95		50 - 200
13C4 PFBA	100		50 - 200
13C5 PFPeA	101		50 - 200
13C3 PFBS	104		50 - 200
13C3 PFHxS	100		50 - 200
13C8 PFOS	99		50 - 200
13C2-4:2-FTS	109		50 - 200
13C2-6:2-FTS	108		50 - 200
13C2-8:2-FTS	103		50 - 200

Lab Sample ID: MRL 380-39424/24-A
Matrix: Water
Analysis Batch: 39722

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 39424

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.00	1.65	J	ng/L		82	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.00	1.73	J	ng/L		86	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	1.66	J	ng/L		83	50 - 150

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QC Sample Results

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

Job ID: 380-43372-1

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

Lab Sample ID: MRL 380-39424/24-A
Matrix: Water
Analysis Batch: 39722

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 39424

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	1.58	J	ng/L		79	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.00	1.58	J	ng/L		79	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	1.69	J	ng/L		85	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	1.68	J	ng/L		84	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	1.72	J	ng/L		86	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.00	1.56	J	ng/L		78	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	1.78	J	ng/L		89	50 - 150
Perfluorononanoic acid (PFNA)	2.00	1.71	J	ng/L		85	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.00	1.64	J	ng/L		82	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	1.67	J	ng/L		83	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	1.67	J	ng/L		83	50 - 150
Perfluorobutanoic acid (PFBA)	2.00	2.56		ng/L		128	50 - 150
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	2.00	1.58	J	ng/L		79	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	2.00	1.85	J	ng/L		92	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	2.00	2.11		ng/L		105	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.00	1.77	J	ng/L		88	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	2.00	1.81	J	ng/L		91	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.00	1.67	J	ng/L		83	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.00	1.62	J	ng/L		81	50 - 150
Perfluoropentanoic acid (PFPeA)	2.00	1.96	J	ng/L		98	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	2.00	1.67	J	ng/L		83	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	2.00	1.57	J	ng/L		78	50 - 150

Isotope Dilution	MRL %Recovery	MRL Qualifier	MRL Limits
13C3 HFPO-DA	98		50 - 200
13C6 PFDA	98		50 - 200
13C5 PFHxA	100		50 - 200
13C4 PFHpA	100		50 - 200
13C8 PFOA	104		50 - 200
13C9 PFNA	107		50 - 200
13C7 PFUnA	99		50 - 200
13C2 PFDoA	100		50 - 200
13C4 PFBA	108		50 - 200
13C5 PFPeA	103		50 - 200
13C3 PFBS	108		50 - 200
13C3 PFHxS	105		50 - 200
13C8 PFOS	103		50 - 200

QC Sample Results

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

Job ID: 380-43372-1

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

Lab Sample ID: MRL 380-39424/24-A
Matrix: Water
Analysis Batch: 39722

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 39424

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>MRL MRL Qualifier</i>	<i>Limits</i>
13C2-4:2-FTS	118		50 - 200
13C2-6:2-FTS	111		50 - 200
13C2-8:2-FTS	108		50 - 200

Lab Sample ID: 380-43372-1 MS
Matrix: Drinking Water
Analysis Batch: 39722

Client Sample ID: AIEA GULCH WELLS PUMP 2
Prep Type: Total/NA
Prep Batch: 39424

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		60.2	54.0		ng/L		90	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		60.2	53.5		ng/L		89	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		60.2	56.4		ng/L		94	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		60.2	54.6		ng/L		91	70 - 130
Perfluorobutanesulfonic acid (PFBS)	ND		60.2	54.6		ng/L		91	70 - 130
Perfluorodecanoic acid (PFDA)	ND		60.2	57.7		ng/L		96	70 - 130
Perfluorododecanoic acid (PFDoA)	ND		60.2	57.2		ng/L		95	70 - 130
Perfluoroheptanoic acid (PFHpA)	ND		60.2	55.6		ng/L		92	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	ND		60.2	56.0		ng/L		93	70 - 130
Perfluorohexanoic acid (PFHxA)	ND		60.2	56.6		ng/L		94	70 - 130
Perfluorononanoic acid (PFNA)	ND		60.2	53.8		ng/L		89	70 - 130
Perfluorooctanesulfonic acid (PFOS)	ND		60.2	53.9		ng/L		90	70 - 130
Perfluorooctanoic acid (PFOA)	ND		60.2	52.2		ng/L		87	70 - 130
Perfluoroundecanoic acid (PFUnA)	ND		60.2	54.7		ng/L		91	70 - 130
Perfluorobutanoic acid (PFBA)	ND	B	60.2	56.6		ng/L		94	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		60.2	51.4		ng/L		85	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		60.2	60.3		ng/L		100	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		60.2	53.4		ng/L		88	70 - 130
Nonfluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		60.2	52.4		ng/L		87	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		60.2	47.4		ng/L		78	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		60.2	55.3		ng/L		92	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		60.2	57.4		ng/L		95	70 - 130
Perfluoropentanoic acid (PFPeA)	ND		60.2	58.2		ng/L		96	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	ND		60.2	55.7		ng/L		92	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	ND		60.2	55.9		ng/L		93	70 - 130

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QC Sample Results

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

Job ID: 380-43372-1

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

Isotope Dilution	MS MS		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	88		50 - 200
13C6 PFDA	95		50 - 200
13C5 PFHxA	88		50 - 200
13C4 PFHpA	90		50 - 200
13C8 PFOA	97		50 - 200
13C9 PFNA	104		50 - 200
13C7 PFUnA	96		50 - 200
13C2 PFDoA	96		50 - 200
13C4 PFBA	93		50 - 200
13C5 PFPeA	93		50 - 200
13C3 PFBS	107		50 - 200
13C3 PFHxS	100		50 - 200
13C8 PFOS	104		50 - 200
13C2-4:2-FTS	106		50 - 200
13C2-6:2-FTS	109		50 - 200
13C2-8:2-FTS	114		50 - 200

Lab Sample ID: 380-43372-1 MSD
Matrix: Drinking Water
Analysis Batch: 39722

Client Sample ID: AIEA GULCH WELLS PUMP 2
Prep Type: Total/NA
Prep Batch: 39424

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec	RPD	RPD
									Limits	RPD	Limit
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		60.2	53.7		ng/L		89	70 - 130	0	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		60.2	57.5		ng/L		95	70 - 130	7	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		60.2	58.0		ng/L		96	70 - 130	3	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		60.2	53.7		ng/L		89	70 - 130	2	30
Perfluorobutanesulfonic acid (PFBS)	ND		60.2	53.5		ng/L		89	70 - 130	2	30
Perfluorodecanoic acid (PFDA)	ND		60.2	55.6		ng/L		92	70 - 130	4	30
Perfluorododecanoic acid (PFDoA)	ND		60.2	56.6		ng/L		94	70 - 130	1	30
Perfluoroheptanoic acid (PFHpA)	ND		60.2	55.5		ng/L		92	70 - 130	0	30
Perfluorohexanesulfonic acid (PFHxS)	ND		60.2	54.8		ng/L		91	70 - 130	2	30
Perfluorohexanoic acid (PFHxA)	ND		60.2	56.7		ng/L		94	70 - 130	0	30
Perfluorononanoic acid (PFNA)	ND		60.2	54.9		ng/L		91	70 - 130	2	30
Perfluorooctanesulfonic acid (PFOS)	ND		60.2	53.9		ng/L		90	70 - 130	0	30
Perfluorooctanoic acid (PFOA)	ND		60.2	54.2		ng/L		90	70 - 130	4	30
Perfluoroundecanoic acid (PFUnA)	ND		60.2	54.9		ng/L		91	70 - 130	0	30
Perfluorobutanoic acid (PFBA)	ND	B	60.2	54.0		ng/L		90	70 - 130	5	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		60.2	57.9		ng/L		96	70 - 130	12	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		60.2	55.3		ng/L		92	70 - 130	9	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		60.2	56.0		ng/L		92	70 - 130	5	30

QC Sample Results

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

Job ID: 380-43372-1

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

Lab Sample ID: MBL 380-36947/24-A
Matrix: Water
Analysis Batch: 37303

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 36947

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	ng/L		04/17/23 08:00	04/19/23 16:09	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	ng/L		04/17/23 08:00	04/19/23 16:09	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	ng/L		04/17/23 08:00	04/19/23 16:09	1
Perfluorononanoic acid (PFNA)	ND		2.0	ng/L		04/17/23 08:00	04/19/23 16:09	1
Perfluorotetradecanoic acid (PFTA)	ND		2.0	ng/L		04/17/23 08:00	04/19/23 16:09	1
Perfluorotridecanoic acid (PFTrDA)	ND		2.0	ng/L		04/17/23 08:00	04/19/23 16:09	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		2.0	ng/L		04/17/23 08:00	04/19/23 16:09	1
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		2.0	ng/L		04/17/23 08:00	04/19/23 16:09	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	ng/L		04/17/23 08:00	04/19/23 16:09	1

Surrogate	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	100		70 - 130	04/17/23 08:00	04/19/23 16:09	1
13C2 PFHxA	103		70 - 130	04/17/23 08:00	04/19/23 16:09	1
13C2 PFDA	104		70 - 130	04/17/23 08:00	04/19/23 16:09	1
13C3-GenX	95		70 - 130	04/17/23 08:00	04/19/23 16:09	1

Lab Sample ID: LCS 380-36947/26-A
Matrix: Water
Analysis Batch: 37303

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 36947

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	50.1	52.2		ng/L		104	70 - 130
Perfluorooctanesulfonic acid (PFOS)	46.4	47.4		ng/L		102	70 - 130
Perfluoroundecanoic acid (PFUnA)	50.1	49.8		ng/L		99	70 - 130
N-methylperfluorooctanesulfonamide-1,1,1-trifluoroethane-2,2,2-trifluoroethane-3-sulfonamide (NMeFOSAA)	50.1	48.2		ng/L		96	70 - 130
N-ethylperfluorooctanesulfonamide-1,1,1-trifluoroethane-2,2,2-trifluoroethane-3-sulfonamide (NEtFOSAA)	50.1	47.1		ng/L		94	70 - 130
Perfluorohexanoic acid (PFHxA)	50.1	51.4		ng/L		103	70 - 130
Perfluorododecanoic acid (PFDoA)	50.1	49.6		ng/L		99	70 - 130
Perfluorooctanoic acid (PFOA)	50.1	53.5		ng/L		107	70 - 130
Perfluorodecanoic acid (PFDA)	50.1	50.7		ng/L		101	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	45.7	48.0		ng/L		105	70 - 130
Perfluorobutanesulfonic acid (PFBS)	44.3	46.1		ng/L		104	70 - 130
Perfluoroheptanoic acid (PFHpA)	50.1	53.4		ng/L		107	70 - 130
Perfluorononanoic acid (PFNA)	50.1	52.7		ng/L		105	70 - 130
Perfluorotetradecanoic acid (PFTA)	50.1	50.0		ng/L		100	70 - 130
Perfluorotridecanoic acid (PFTrDA)	50.1	50.1		ng/L		100	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	46.8	45.5		ng/L		97	70 - 130

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-43372-1

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

Lab Sample ID: LCS 380-36947/26-A
Matrix: Water
Analysis Batch: 37303

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 36947

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	47.3	47.1		ng/L		99	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	47.3	48.7		ng/L		103	70 - 130
LCS LCS							
Surrogate	%Recovery	Qualifier	Limits				
d5-NEtFOSAA	100		70 - 130				
13C2 PFHxA	120		70 - 130				
13C2 PFDA	106		70 - 130				
13C3-GenX	111		70 - 130				

Lab Sample ID: LCSD 380-36947/27-A
Matrix: Water
Analysis Batch: 37303

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 36947

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	50.1	50.2		ng/L		100	70 - 130	4	30
Perfluorooctanesulfonic acid (PFOS)	46.4	48.5		ng/L		105	70 - 130	2	30
Perfluoroundecanoic acid (PFUnA)	50.1	51.3		ng/L		102	70 - 130	3	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	50.1	51.1		ng/L		102	70 - 130	6	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	50.1	47.4		ng/L		95	70 - 130	1	30
Perfluorohexanoic acid (PFHxA)	50.1	54.1		ng/L		108	70 - 130	5	30
Perfluorododecanoic acid (PFDoA)	50.1	52.7		ng/L		105	70 - 130	6	30
Perfluorooctanoic acid (PFOA)	50.1	53.1		ng/L		106	70 - 130	1	30
Perfluorodecanoic acid (PFDA)	50.1	53.1		ng/L		106	70 - 130	5	30
Perfluorohexanesulfonic acid (PFHxS)	45.7	48.0		ng/L		105	70 - 130	0	30
Perfluorobutanesulfonic acid (PFBS)	44.3	48.1		ng/L		108	70 - 130	4	30
Perfluoroheptanoic acid (PFHpA)	50.1	53.1		ng/L		106	70 - 130	1	30
Perfluorononanoic acid (PFNA)	50.1	52.8		ng/L		105	70 - 130	0	30
Perfluorotetradecanoic acid (PFTA)	50.1	54.0		ng/L		108	70 - 130	8	30
Perfluorotridecanoic acid (PFTrDA)	50.1	52.3		ng/L		104	70 - 130	4	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	46.8	47.7		ng/L		102	70 - 130	5	30
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	47.3	47.3		ng/L		100	70 - 130	1	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	47.3	48.5		ng/L		102	70 - 130	0	30

QC Sample Results

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

Job ID: 380-43372-1

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

Lab Sample ID: LCSD 380-36947/27-A
Matrix: Water
Analysis Batch: 37303

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 36947

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
d5-NEtFOSAA	99		70 - 130
13C2 PFHxA	121		70 - 130
13C2 PFDA	113		70 - 130
13C3-GenX	113		70 - 130

Lab Sample ID: MRL 380-36947/25-A
Matrix: Water
Analysis Batch: 37303

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 36947

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec
							Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	2.01		ng/L		100	50 - 150
Perfluorooctanesulfonic acid (PFOS)	1.86	2.05		ng/L		111	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	2.12		ng/L		106	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	2.19		ng/L		109	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	2.16		ng/L		108	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	2.33		ng/L		116	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	2.05		ng/L		102	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	2.60		ng/L		130	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	2.11		ng/L		105	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	1.83	2.17		ng/L		119	50 - 150
Perfluorobutanesulfonic acid (PFBS)	1.77	2.00		ng/L		113	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	2.37		ng/L		118	50 - 150
Perfluorononanoic acid (PFNA)	2.00	2.21		ng/L		110	50 - 150
Perfluorotetradecanoic acid (PFTA)	2.00	2.08		ng/L		104	50 - 150
Perfluorotridecanoic acid (PFTrDA)	2.00	2.09		ng/L		104	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	1.87	1.90	J	ng/L		101	50 - 150
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	1.89	1.82	J	ng/L		96	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.89	2.07		ng/L		109	50 - 150

Surrogate	MRL		Limits
	%Recovery	Qualifier	
d5-NEtFOSAA	99		70 - 130
13C2 PFHxA	107		70 - 130
13C2 PFDA	101		70 - 130
13C3-GenX	98		70 - 130

QC Sample Results

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

Job ID: 380-43372-1

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

Lab Sample ID: 380-43533-D-1-B MSD
Matrix: Water
Analysis Batch: 37303

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 36947

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		50.2	45.9		ng/L		91	70 - 130	2	30
Perfluorohexanoic acid (PFHxA)	ND		50.2	52.4		ng/L		104	70 - 130	6	30
Perfluorododecanoic acid (PFDoA)	ND		50.2	52.2		ng/L		104	70 - 130	3	30
Perfluorooctanoic acid (PFOA)	ND		50.2	53.6		ng/L		105	70 - 130	0	30
Perfluorodecanoic acid (PFDA)	ND		50.2	50.9		ng/L		101	70 - 130	3	30
Perfluorohexanesulfonic acid (PFHxS)	ND		45.8	47.6		ng/L		103	70 - 130	3	30
Perfluorobutanesulfonic acid (PFBS)	ND		44.4	47.1		ng/L		106	70 - 130	0	30
Perfluoroheptanoic acid (PFHpA)	ND		50.2	52.1		ng/L		103	70 - 130	5	30
Perfluorononanoic acid (PFNA)	ND		50.2	54.7		ng/L		109	70 - 130	9	30
Perfluorotetradecanoic acid (PFTA)	ND		50.2	54.4		ng/L		108	70 - 130	7	30
Perfluorotridecanoic acid (PFTrDA)	ND		50.2	53.3		ng/L		106	70 - 130	1	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		46.9	47.4		ng/L		101	70 - 130	1	30
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		47.4	47.0		ng/L		99	70 - 130	3	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		47.4	50.4		ng/L		106	70 - 130	8	30
Surrogate		MSD	MSD								
		%Recovery	Qualifier	Limits							
d5-NEtFOSAA		101		70 - 130							
13C2 PFHxA		119		70 - 130							
13C2 PFDA		112		70 - 130							
13C3-GenX		115		70 - 130							

Lab Sample ID: 380-43533-F-1-B DU
Matrix: Water
Analysis Batch: 37303

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 36947

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	RPD
	Result	Qualifier	Result	Qualifier				
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		ND		ng/L		NC	30
Perfluorooctanesulfonic acid (PFOS)	ND		ND		ng/L		NC	30
Perfluoroundecanoic acid (PFUnA)	ND		ND		ng/L		NC	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		ND		ng/L		NC	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		ND		ng/L		NC	30
Perfluorohexanoic acid (PFHxA)	ND		ND		ng/L		NC	30
Perfluorododecanoic acid (PFDoA)	ND		ND		ng/L		NC	30
Perfluorooctanoic acid (PFOA)	ND		ND		ng/L		NC	30
Perfluorodecanoic acid (PFDA)	ND		ND		ng/L		NC	30

QC Sample Results

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

Job ID: 380-43372-1

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

Lab Sample ID: 380-43533-F-1-B DU
Matrix: Water
Analysis Batch: 37303

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 36947

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Perfluorohexanesulfonic acid (PFHxS)	ND		ND		ng/L		NC	30
Perfluorobutanesulfonic acid (PFBS)	ND		ND		ng/L		NC	30
Perfluoroheptanoic acid (PFHpA)	ND		ND		ng/L		NC	30
Perfluorononanoic acid (PFNA)	ND		ND		ng/L		NC	30
Perfluorotetradecanoic acid (PFTA)	ND		ND		ng/L		NC	30
Perfluorotridecanoic acid (PFTTrDA)	ND		ND		ng/L		NC	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	ND		ND		ng/L		NC	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		ND		ng/L		NC	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		ND		ng/L		NC	30
		DU	DU					
Surrogate	%Recovery	Qualifier	Limits					
d5-NEtFOSAA	101		70 - 130					
13C2 PFHxA	113		70 - 130					
13C2 PFDA	106		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: 105106-B1
Matrix: BlankMatrix
Analysis Batch: O-41036

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: O-41036_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 05:05	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 05:05	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 05:05	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 05:05	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 05:05	1
Acenaphthene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 05:05	1
Acenaphthylene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 05:05	1
Anthracene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 05:05	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 05:05	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 05:05	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 05:05	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 05:05	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 05:05	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 05:05	1
Biphenyl	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 05:05	1
Chrysene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 05:05	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 05:05	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 05:05	1
Dibenzothiophene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 05:05	1

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-43372-1

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

Lab Sample ID: 105106-B1
Matrix: BlankMatrix
Analysis Batch: O-41036

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: O-41036_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Disalicylidenepranediamine	ND		0.1	0.05	µg/L		04/13/23 00:00	04/26/23 05:05	1
Fluoranthene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 05:05	1
Fluorene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 05:05	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 05:05	1
Naphthalene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 05:05	1
Perylene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 05:05	1
Phenanthrene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 05:05	1
Pyrene	ND		0.005	0.001	µg/L		04/13/23 00:00	04/26/23 05:05	1
Surrogate	Blank %Recovery	Blank Qualifier	Limits				Prepared	Analyzed	Dil Fac
(d10-Acenaphthene)	97		27 - 133				04/13/23 00:00	04/26/23 05:05	1
(d10-Phenanthrene)	99		43 - 129				04/13/23 00:00	04/26/23 05:05	1
(d12-Chrysene)	97		52 - 144				04/13/23 00:00	04/26/23 05:05	1
(d12-Perylene)	94		36 - 161				04/13/23 00:00	04/26/23 05:05	1
(d8-Naphthalene)	86		25 - 125				04/13/23 00:00	04/26/23 05:05	1

Lab Sample ID: 105106-BS1
Matrix: BlankMatrix
Analysis Batch: O-41036

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: O-41036_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1-Methylnaphthalene	0.5	0.344		µg/L		69	31 - 128
1-Methylphenanthrene	0.5	0.434		µg/L		87	66 - 127
2,3,5-Trimethylnaphthalene	0.5	0.406		µg/L		81	55 - 122
2,6-Dimethylnaphthalene	0.5	0.372		µg/L		74	48 - 120
2-Methylnaphthalene	0.5	0.342		µg/L		68	47 - 130
Acenaphthene	0.5	0.386		µg/L		77	53 - 131
Acenaphthylene	0.5	0.381		µg/L		76	43 - 140
Anthracene	0.5	0.431		µg/L		86	58 - 135
Benz[a]anthracene	0.5	0.438		µg/L		88	55 - 145
Benzo[a]pyrene	0.5	0.44		µg/L		88	51 - 143
Benzo[b]fluoranthene	0.5	0.445		µg/L		89	46 - 165
Benzo[e]pyrene	0.5	0.435		µg/L		87	42 - 152
Benzo[g,h,i]perylene	0.5	0.45		µg/L		90	63 - 133
Benzo[k]fluoranthene	0.5	0.444		µg/L		89	56 - 145
Biphenyl	0.5	0.369		µg/L		74	56 - 119
Chrysene	0.5	0.437		µg/L		87	56 - 141
Dibenz[a,h]anthracene	0.5	0.467		µg/L		93	55 - 150
Dibenzo[a,l]pyrene	0.5	0.509		µg/L		102	50 - 150
Dibenzothiophene	0.5	0.432		µg/L		86	46 - 126
Disalicylidenepranediamine	50	56.9		µg/L		114	50 - 150
Fluoranthene	0.5	0.443		µg/L		89	60 - 146
Fluorene	0.5	0.411		µg/L		82	58 - 131
Indeno[1,2,3-cd]pyrene	0.5	0.47		µg/L		94	50 - 151
Naphthalene	0.5	0.334		µg/L		67	41 - 126
Perylene	0.5	0.418		µg/L		84	48 - 141
Phenanthrene	0.5	0.435		µg/L		87	67 - 127
Pyrene	0.5	0.44		µg/L		88	54 - 156

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-43372-1

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

Lab Sample ID: 105106-BS1
Matrix: BlankMatrix
Analysis Batch: O-41036

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: O-41036_P

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
(d10-Acenaphthene)	85		27 - 133
(d10-Phenanthrene)	95		43 - 129
(d12-Chrysene)	98		52 - 144
(d12-Perylene)	92		36 - 161
(d8-Naphthalene)	69		25 - 125

Lab Sample ID: 105106-BS2
Matrix: BlankMatrix
Analysis Batch: O-41036

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: O-41036_P

Analyte	Spike Added	LCS DUP Result	LCS DUP Qualifier	Unit	D	%Rec	%Rec		RPD	
							Limits	RPD	Limit	
1-Methylnaphthalene	0.5	0.371		µg/L		74	31 - 128	7	30	
1-Methylphenanthrene	0.5	0.439		µg/L		88	66 - 127	1	30	
2,3,5-Trimethylnaphthalene	0.5	0.414		µg/L		83	55 - 122	2	30	
2,6-Dimethylnaphthalene	0.5	0.385		µg/L		77	48 - 120	4	30	
2-Methylnaphthalene	0.5	0.371		µg/L		74	47 - 130	8	30	
Acenaphthene	0.5	0.398		µg/L		80	53 - 131	4	30	
Acenaphthylene	0.5	0.389		µg/L		78	43 - 140	3	30	
Anthracene	0.5	0.434		µg/L		87	58 - 135	1	30	
Benz[a]anthracene	0.5	0.43		µg/L		86	55 - 145	2	30	
Benzo[a]pyrene	0.5	0.433		µg/L		87	51 - 143	1	30	
Benzo[b]fluoranthene	0.5	0.443		µg/L		89	46 - 165	0	30	
Benzo[e]pyrene	0.5	0.435		µg/L		87	42 - 152	0	30	
Benzo[g,h,i]perylene	0.5	0.454		µg/L		91	63 - 133	1	30	
Benzo[k]fluoranthene	0.5	0.442		µg/L		88	56 - 145	1	30	
Biphenyl	0.5	0.39		µg/L		78	56 - 119	5	30	
Chrysene	0.5	0.429		µg/L		86	56 - 141	1	30	
Dibenz[a,h]anthracene	0.5	0.48		µg/L		96	55 - 150	3	30	
Dibenzo[a,l]pyrene	0.5	0.525		µg/L		105	50 - 150	3	30	
Dibenzothiophene	0.5	0.433		µg/L		87	46 - 126	1	30	
Disalicylidenepropanediamine	50	71.8		µg/L		144	50 - 150	23	30	
Fluoranthene	0.5	0.447		µg/L		89	60 - 146	0	30	
Fluorene	0.5	0.419		µg/L		84	58 - 131	2	30	
Indeno[1,2,3-cd]pyrene	0.5	0.473		µg/L		95	50 - 151	1	30	
Naphthalene	0.5	0.369		µg/L		74	41 - 126	10	30	
Perylene	0.5	0.426		µg/L		85	48 - 141	1	30	
Phenanthrene	0.5	0.437		µg/L		87	67 - 127	0	30	
Pyrene	0.5	0.44		µg/L		88	54 - 156	0	30	

Surrogate	LCS DUP LCS DUP		Limits
	%Recovery	Qualifier	
(d10-Acenaphthene)	84		27 - 133
(d10-Phenanthrene)	92		43 - 129
(d12-Chrysene)	93		52 - 144
(d12-Perylene)	88		36 - 161
(d8-Naphthalene)	74		25 - 125

QC Sample Results

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

Job ID: 380-43372-1

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

Lab Sample ID: 23VG39D07B
Matrix: WATER
Analysis Batch: 23VG39D07

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GASOLINE	ND	U	0.020		mg/L			04/14/23 12:04	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
BROMOFLUOROBENZENE								04/14/23 12:04	1

Lab Sample ID: 23VG39D07L
Matrix: WATER
Analysis Batch: 23VG39D07

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
GASOLINE	0.500	0.478		mg/L		96	60 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
BROMOFLUOROBENZENE	114		70 - 130				

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

Lab Sample ID: 23DSD020WB
Matrix: WATER
Analysis Batch: 23DSD020W

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DIESEL	ND	U	0.025		mg/L			04/18/23 13:15	1
JP5	ND	U	0.050		mg/L			04/18/23 13:15	1
JP8	ND	U	0.050		mg/L			04/18/23 13:15	1
MOTOR OIL	ND	U	0.050		mg/L			04/18/23 13:15	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
BROMOBENZENE								04/18/23 13:15	1
HEXACOSANE								04/18/23 13:15	1

Lab Sample ID: 23DSD020WL
Matrix: WATER
Analysis Batch: 23DSD020W

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
DIESEL	2.50	2.08		mg/L		83	50 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
BROMOBENZENE	80		60 - 130				
HEXACOSANE	94		60 - 130				

Lab Sample ID: 23J5D020WL
Matrix: WATER
Analysis Batch: 23DSD020W

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
JP5	2.50	1.91		mg/L		76	30 - 160

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QC Sample Results

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

Job ID: 380-43372-1

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

Surrogate	LCS		Limits
	%Recovery	Qualifier	
BROMOBENZENE	75		60 - 130
HEXACOSANE	93		60 - 130

Lab Sample ID: 23J8D020WL
 Matrix: WATER
 Analysis Batch: 23DSD020W

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

Analyte	Spike Added	LCS		Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
JP8	2.50	2.01		mg/L		80	30 - 160

Surrogate	LCS		Limits
	%Recovery	Qualifier	
BROMOBENZENE	92		60 - 130
HEXACOSANE	92		60 - 130

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QC Association Summary

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

Job ID: 380-43372-1

GC/MS Semi VOA

Prep Batch: 36672

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-43372-1	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	525.2	
MB 380-36672/1-A	Method Blank	Total/NA	Water	525.2	
LCS 380-36672/3-A	Lab Control Sample	Total/NA	Water	525.2	
LCSD 380-36672/4-A	Lab Control Sample Dup	Total/NA	Water	525.2	
MRL 380-36672/2-A	Lab Control Sample	Total/NA	Water	525.2	
380-43158-AJ-1-A MS	Matrix Spike	Total/NA	Water	525.2	
380-43524-B-1-B DU	Duplicate	Total/NA	Water	525.2	

Analysis Batch: 36974

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-43372-1	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	525.2	36672
MB 380-36672/1-A	Method Blank	Total/NA	Water	525.2	36672
LCS 380-36672/3-A	Lab Control Sample	Total/NA	Water	525.2	36672
LCSD 380-36672/4-A	Lab Control Sample Dup	Total/NA	Water	525.2	36672
MRL 380-36672/2-A	Lab Control Sample	Total/NA	Water	525.2	36672
380-43158-AJ-1-A MS	Matrix Spike	Total/NA	Water	525.2	36672
380-43524-B-1-B DU	Duplicate	Total/NA	Water	525.2	36672

LCMS

Prep Batch: 36947

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-43372-1	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	537.1 DW	
380-43372-3	FB: AIEA GULCH WELLS PUMP 2	Total/NA	Water	537.1 DW	
MBL 380-36947/24-A	Method Blank	Total/NA	Water	537.1 DW	
LCS 380-36947/26-A	Lab Control Sample	Total/NA	Water	537.1 DW	
LCSD 380-36947/27-A	Lab Control Sample Dup	Total/NA	Water	537.1 DW	
MRL 380-36947/25-A	Lab Control Sample	Total/NA	Water	537.1 DW	
380-43533-D-1-A MS	Matrix Spike	Total/NA	Water	537.1 DW	
380-43533-D-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	537.1 DW	
380-43533-F-1-B DU	Duplicate	Total/NA	Water	537.1 DW	

Analysis Batch: 37303

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-43372-1	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	537.1	36947
380-43372-3	FB: AIEA GULCH WELLS PUMP 2	Total/NA	Water	537.1	36947
MBL 380-36947/24-A	Method Blank	Total/NA	Water	537.1	36947
LCS 380-36947/26-A	Lab Control Sample	Total/NA	Water	537.1	36947
LCSD 380-36947/27-A	Lab Control Sample Dup	Total/NA	Water	537.1	36947
MRL 380-36947/25-A	Lab Control Sample	Total/NA	Water	537.1	36947
380-43533-D-1-A MS	Matrix Spike	Total/NA	Water	537.1	36947
380-43533-D-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	537.1	36947
380-43533-F-1-B DU	Duplicate	Total/NA	Water	537.1	36947

Prep Batch: 39424

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-43372-1	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	533	
380-43372-3	FB: AIEA GULCH WELLS PUMP 2	Total/NA	Water	533	
MBL 380-39424/23-A	Method Blank	Total/NA	Water	533	
LCS 380-39424/25-A	Lab Control Sample	Total/NA	Water	533	
LCSD 380-39424/26-A	Lab Control Sample Dup	Total/NA	Water	533	

Eurofins Eaton Analytical Pomona

QC Association Summary

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

Job ID: 380-43372-1

LCMS (Continued)

Prep Batch: 39424 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MRL 380-39424/24-A	Lab Control Sample	Total/NA	Water	533	
380-43372-1 MS	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	533	
380-43372-1 MSD	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	533	

Analysis Batch: 39722

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-43372-1	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	533	39424
380-43372-3	FB: AIEA GULCH WELLS PUMP 2	Total/NA	Water	533	39424
MBL 380-39424/23-A	Method Blank	Total/NA	Water	533	39424
LCS 380-39424/25-A	Lab Control Sample	Total/NA	Water	533	39424
LCSD 380-39424/26-A	Lab Control Sample Dup	Total/NA	Water	533	39424
MRL 380-39424/24-A	Lab Control Sample	Total/NA	Water	533	39424
380-43372-1 MS	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	533	39424
380-43372-1 MSD	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	533	39424

Subcontract

Analysis Batch: O-41036

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-43372-1	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	625 PAH Physis LL (EAL) + TICs	O-41036_P
105106-B1	Method Blank	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-41036_P
105106-BS1	Lab Control Sample	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-41036_P
105106-BS2	Lab Control Sample Dup	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-41036_P

Analysis Batch: 23DSD020W

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-43372-1	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	8015 LL DRO/MRO/JP5/J P8	
23DSD020WB	Method Blank	Total/NA	WATER	8015 LL DRO/MRO/JP5/J P8	
23DSD020WL	Lab Control Sample	Total/NA	WATER	8015 LL DRO/MRO/JP5/J P8	
23J5D020WL	Lab Control Sample	Total/NA	WATER	8015 LL DRO/MRO/JP5/J P8	
23J8D020WL	Lab Control Sample	Total/NA	WATER	8015 LL DRO/MRO/JP5/J P8	

Analysis Batch: 23VG39D07

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-43372-1	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	8015 Gas (Purgeable) LL (EAL)	
380-43372-2	TB: AIEA GULCH WELLS PUMP 2	Total/NA	Water	8015 Gas (Purgeable) LL (EAL)	

QC Association Summary

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

Job ID: 380-43372-1

Subcontract (Continued)

Analysis Batch: 23VG39D07 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
23VG39D07B	Method Blank	Total/NA	WATER	8015 Gas (Purgeable) LL (EAL)	
23VG39D07L	Lab Control Sample	Total/NA	WATER	8015 Gas (Purgeable) LL (EAL)	

Prep Batch: O-41036_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-43372-1	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	EPA_625	
105106-B1	Method Blank	Total/NA	BlankMatrix	EPA_625	
105106-BS1	Lab Control Sample	Total/NA	BlankMatrix	EPA_625	
105106-BS2	Lab Control Sample Dup	Total/NA	BlankMatrix	EPA_625	



Lab Chronicle

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

Job ID: 380-43372-1

Client Sample ID: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-43372-1

Date Collected: 04/11/23 10:10

Matrix: Drinking Water

Date Received: 04/12/23 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	525.2			36672	OTM3	EA POM	04/14/23 10:00
Total/NA	Analysis	525.2		1	36974	Q8LA	EA POM	04/17/23 17:44
Total/NA	Prep	533			39424	EE6W	EA POM	05/08/23 12:55
Total/NA	Analysis	533		1	39722	UKDT	EA POM	05/10/23 22:18
Total/NA	Prep	537.1 DW			36947	US1B	EA POM	04/17/23 08:00
Total/NA	Analysis	537.1		1	37303	Y7BM	EA POM	04/20/23 10:42
Total/NA	Prep	EPA_625		1	O-41036_P			04/13/23 00:00
Total/NA	Analysis	625 PAH Physis LL (EAL) + TICs		1	O-41036	YC		04/26/23 14:00
Total/NA	Analysis	8015 Gas (Purgeable) LL (EAL)		1	23VG39D07	SCerva		04/14/23 16:16
Total/NA	Analysis	8015 LL DRO/MRO/JP5/JP8		1	23DSD020W	SDees		04/18/23 17:36

Client Sample ID: TB: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-43372-2

Date Collected: 04/11/23 10:10

Matrix: Water

Date Received: 04/12/23 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	23VG39D07	SCerva		04/14/23 17:28

Client Sample ID: FB: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-43372-3

Date Collected: 04/11/23 10:10

Matrix: Water

Date Received: 04/12/23 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			39424	EE6W	EA POM	05/08/23 12:55
Total/NA	Analysis	533		1	39722	UKDT	EA POM	05/10/23 22:56
Total/NA	Prep	537.1 DW			36947	US1B	EA POM	04/17/23 08:00
Total/NA	Analysis	537.1		1	37303	Y7BM	EA POM	04/20/23 10:51

Laboratory References:

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

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

Accreditation/Certification Summary

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

Job ID: 380-43372-1

Laboratory: Eurofins Eaton Analytical Pomona

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

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

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

Analysis Method	Prep Method	Matrix	Analyte
525.2	525.2	Drinking Water	2,4'-DDD
525.2	525.2	Drinking Water	2,4'-DDE
525.2	525.2	Drinking Water	2,4'-DDT
525.2	525.2	Drinking Water	2,4-Dinitrotoluene
525.2	525.2	Drinking Water	2,6-Dinitrotoluene
525.2	525.2	Drinking Water	4,4'-DDD
525.2	525.2	Drinking Water	4,4'-DDE
525.2	525.2	Drinking Water	4,4'-DDT
525.2	525.2	Drinking Water	Acenaphthene
525.2	525.2	Drinking Water	Acenaphthylene
525.2	525.2	Drinking Water	Acetochlor
525.2	525.2	Drinking Water	alpha-BHC
525.2	525.2	Drinking Water	alpha-Chlordane
525.2	525.2	Drinking Water	Anthracene
525.2	525.2	Drinking Water	Benz(a)anthracene
525.2	525.2	Drinking Water	Benzo[b]fluoranthene
525.2	525.2	Drinking Water	Benzo[g,h,i]perylene
525.2	525.2	Drinking Water	Benzo[k]fluoranthene
525.2	525.2	Drinking Water	beta-BHC
525.2	525.2	Drinking Water	Bromacil
525.2	525.2	Drinking Water	Butylbenzylphthalate
525.2	525.2	Drinking Water	Caffeine
525.2	525.2	Drinking Water	Chlorobenzilate
525.2	525.2	Drinking Water	Chloroneb
525.2	525.2	Drinking Water	Chlorothalonil (Draconil, Bravo)
525.2	525.2	Drinking Water	Chlorpyrifos
525.2	525.2	Drinking Water	Chrysene
525.2	525.2	Drinking Water	delta-BHC
525.2	525.2	Drinking Water	Diazinon (Qualitative)
525.2	525.2	Drinking Water	Dibenz(a,h)anthracene
525.2	525.2	Drinking Water	Diclorvos (DDVP)
525.2	525.2	Drinking Water	Diethylphthalate
525.2	525.2	Drinking Water	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: 380-43372-1

Laboratory: Eurofins Eaton Analytical Pomona (Continued)

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

Authority	Program	Identification Number	Expiration Date
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
525.2	525.2	Drinking Water	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: 380-43372-1

Laboratory: Eurofins Eaton Analytical Pomona (Continued)

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

Authority	Program	Identification Number	Expiration Date
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
<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: 380-43372-1

Method	Method Description	Protocol	Laboratory
525.2	Semivolatile Organic Compounds (GC/MS)	EPA	EA POM
533	Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water	EPA	EA POM
537.1	Perfluorinated Alkyl Acids (LC/MS)	EPA	EA POM
625	EPA 625 Base/Neutral and Acid Organics i	EPA	
8015	8015 - TPH DRO/ORO	EPA	
8015B	SW846 8015B Gasoline Range Organics	SW846	
525.2	Extraction of Semivolatile Compounds	EPA	EA POM
533	Extraction of Perfluorinated and Polyfluorinated Alkyl Acids	EPA	EA POM
537.1 DW	Extraction of Perfluorinated Alkyl Acids	EPA	EA POM

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

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

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

Sample Summary

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

Job ID: 380-43372-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	PWSID Number
380-43372-1	AIEA GULCH WELLS PUMP 2	Drinking Water	04/11/23 10:10	04/12/23 10:00	HI0000331
380-43372-2	TB: AIEA GULCH WELLS PUMP 2	Water	04/11/23 10:10	04/12/23 10:00	
380-43372-3	FB: AIEA GULCH WELLS PUMP 2	Water	04/11/23 10:10	04/12/23 10:00	

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



3051 Fujita Street
Torrance, CA 90505
Tel: (310)-618-8889

Date: 05-10-2023
EMAX Batch No.: 23D145

Attn: Jackie Contreras

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

Subject: Laboratory Report
Project: 380-43372

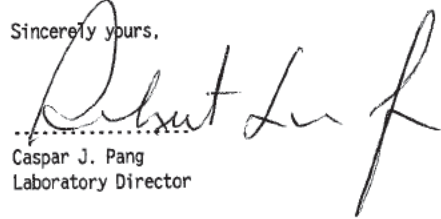
Enclosed is the Laboratory report for samples received on 04/13/23.
The data reported relate only to samples listed below :

Sample ID	Control #	Col Date	Matrix	Analysis
380-43372-1	D145-01	04/11/23	WATER	TPH GASOLINE TPH
380-43372-2	D145-02	04/11/23	WATER	TPH GASOLINE

The results are summarized on the following pages.

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

Sincerely yours,


Caspar J. Pang
Laboratory Director

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

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

NELAP Accredited Certificate Number CA002912022-24
ANAB Accredited DoD ELAP and ISO/IEC 17025 Certificate Number L2278 Testing
California ELAP Accredited Certificate Number 2672

Eurofins Eaton Analytical Pomona
 941 Corporate Center Drive
 Pomona, CA 91768-2642
 Phone: 626-386-1100

Chain of Custody Record

eurofins



Chain of Custody Record

23D145

Client Information (Sub Contract Lab) Company: EMAX Laboratories Inc Address: 3051 Fujita Street, Torrance, CA, 90505 City: Torrance State, Zip: CA, 90505 Phone: Email:		Lab PM: Arada, Rachelle E-Mail: Rachelle.Arada@eat.eurofins.com State of Origin: Hawaii Carrier Tracking No(s): 380-47642.1 Page: Page 1 of 1 Job #: 380-43372-1 Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
Sample Information Due Date Requested: 4/26/2023 TAT Requested (days): PO #: WO #: Project #: 38001111 SSON#:		Analysis Requested State - Hawaii Accreditations Required (See note): State - Hawaii	
Sample Identification - Client ID (Lab ID) AIEA GULCH WELLS PUMP 2 (380-43372-1) TB - AIEA GULCH WELLS PUMP 2 (380-43372-2)		Field Filtered Sample (Yes or No) Perform MSMSD (Yes or No) SUB (8015 Gas (Purgeable) LL (EAL)) / 8015 Gas SUB (8015 LL DROM/RO/PS/JP8) / 8015 LL DROM/RO/PS/JP8	
Sample Date 4/1/23 4/1/23	Sample Time 10:10 10:10	Sample Type (C=comp, G=grab) Water Water	Matrix (W=water, S=solid, O=organic) Water Water
Special Instructions/Note: See Attached Instructions See Attached Instructions		Total Number of containers 6 2	

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/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Eaton Analytical, LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Eaton Analytical, LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Eaton Analytical, LLC.

Possible Hazard Identification
 Unconfirmed Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2
 Special Instructions/QC Requirements:
 Return To Client Disposal By Lab Archive For Months

Empty Kit Relinquished by: _____ Date: _____
Relinquished by: *Megan Di* Date/Time: 4/13/23 15:39 Company: EMAX
Relinquished by: _____ Date/Time: _____ Company: _____
Relinquished by: _____ Date/Time: _____ Company: _____
 Custody Seals Intact: Yes No Delta Seal No.: CF--0.2 5.3/5.1
 Cooler Temperature(s) °C and Other Remarks:



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 type="checkbox"/> EMAX Courier <input checked="" type="checkbox"/> Client Delivery	Airbill / Tracking Number	ECN <u>23D145</u> Recipient <u>Maria Rivera</u> Date <u>04/13/23</u> Time <u>1939</u>
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COC INSPECTION

<input checked="" type="checkbox"/> Client Name	<input checked="" type="checkbox"/> Client PM/FC	<input type="checkbox"/> Sampler Name	<input checked="" type="checkbox"/> Sampling Date/Time	<input checked="" type="checkbox"/> Sample ID	<input checked="" type="checkbox"/> Matrix
<input checked="" type="checkbox"/> Address	<input checked="" 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, ≤5 °C but not frozen)	<input checked="" type="checkbox"/> Cooler 1 <u>6.3/5.1</u> °C	<input type="checkbox"/> Cooler 2 _____ °C	<input type="checkbox"/> Cooler 3 _____ °C
Thermometer: <u>A - S/N 221052760</u>	<input type="checkbox"/> Cooler 6 _____ °C	<input type="checkbox"/> Cooler 7 _____ °C	<input type="checkbox"/> Cooler 8 _____ °C
	<input checked="" type="checkbox"/> <u>B - S/N 210760237</u>	<input type="checkbox"/> Cooler 9 _____ °C	<input type="checkbox"/> Cooler 10 _____ °C
		C - S/N _____	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>7,8</u>	<u>022</u>	<u>2nd date reads: 4/3/23</u>	<u>R1</u>

4/13/23 4/14/23

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

NOTES/OBSERVATIONS:

SAMPLE MATRIX IS DRINKING WATER? YES NO

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

REVIEWERS:

Sample Labeling <u>Nahacen Nacana</u>	SRF <u>Opilia</u>	PM <u>EA for RB</u>
Date <u>04/13/23</u>	Date <u>4/13/23</u>	Date <u>4/14/23</u>

REPORT ID: 23D145 Page 61 of 120 Page 3 of 35 5/25/2023

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

380-43372

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

SDG#: 23D145



CASE NARRATIVE

Client : EUROFINS EATON ANALYTICAL

Project: 380-43372

SDG : 23D145

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

A total of two(2) water samples were received on 04/13/23 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. VG39D07B - 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. VG39D07L/VG39D07C 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 D143-01M/D143-01S. Refer to Matrix QC summary form for details.

Surrogate

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

Sample Analysis

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

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SAMPLE RESULTS

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

```

=====
Client      : EUROFINS EATON ANALYTICAL   Date Collected: 04/11/23 10:10
Project     : 380-43372                   Date Received: 04/13/23
Batch No.   : 23D145                       Date Extracted: 04/14/23 17:28
Sample ID   : 380-43372-2                 Date Analyzed: 04/14/23 17:28
Lab Samp ID : D145-02                     Dilution Factor: 1
Lab File ID : ED14014A                    Matrix: WATER
Ext Btch ID : 23VG39D07                  % Moisture: NA
Calib. Ref. : ED14013A                   Instrument ID: 39
=====

```

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)	
-----	-----	-----	-----	
GASOLINE	ND	0.020	0.010	
SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
-----	-----	-----	-----	-----
Bromofluorobenzene	0.0337	0.0400	84	60-140

Notes:

Parameter H-C Range
Gasoline C6-C10

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

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

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QC SUMMARIES

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL
PROJECT : 380-43372
BATCH NO. : 23D145
METHOD : 5030B/8015B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR:	1	1	1
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: VG39D07B	VG39D07L	VG39D07C
LAB FILE ID	: ED14005A	ED14006A	ED14007A
DATE PREPARED	: 04/14/23 12:04	04/14/23 12:40	04/14/23 13:16
DATE ANALYZED	: 04/14/23 12:04	04/14/23 12:40	04/14/23 13:16
PREP BATCH	: 23VG39D07	23VG39D07	23VG39D07
CALIBRATION REF:	ED14004A	ED14004A	ED14004A

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	0.478	96	0.500	0.488	98	2	60-130	30

SURROGATE PARAMETER	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	SpikeAmt (mg/L)	LCDResult (mg/L)	LCDRec (%)	QCLimit (%)
Bromofluorobenzene	0.0400	0.0457	114	0.0400	0.0451	113	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 : 380-43382
BATCH NO. : 23D143
METHOD : 5030B/8015B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR:	1	1	1
SAMPLE ID	: 380-43382-1	380-43382-1MS	380-43382-1MSD
LAB SAMPLE ID	: D143-01	D143-01M	D143-01S
LAB FILE ID	: ED14008A	ED14009A	ED14010A
DATE PREPARED	: 04/14/23 13:52	04/14/23 14:28	04/14/23 15:04
DATE ANALYZED	: 04/14/23 13:52	04/14/23 14:28	04/14/23 15:04
PREP BATCH	: 23VG39D07	23VG39D07	23VG39D07
CALIBRATION REF:	ED14004A	ED14004A	ED14004A

ACCESSION:

PARAMETERS	PSResult (mg/L)	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Gasoline	ND	0.500	0.449	90	0.500	0.476	95	6	50-130	30

SURROGATE PARAMETER	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	QCLimit (%)
Bromofluorobenzene	0.0400	0.0447	112	0.0400	0.0448	112	60-140

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

LABORATORY REPORT FOR

EUROFINS EATON ANALYTICAL

380-43372

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

SDG#: 23D145



CASE NARRATIVE

Client : EUROFINS EATON ANALYTICAL

Project: 380-43372

SDG : 23D145

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

One(1) water sample was received on 04/13/23 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. DSD020WB - 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 DSD020WL. 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 23D135-01M/23D135-01S. 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: 380-43372

SDG : 23D145

METHOD 3520C/8015B
PETROLEUM HYDROCARBONS BY EXTRACTION

One(1) water sample was received on 04/13/23 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. DSD020WB - 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 J5D020WL. 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 23D135-01M/23D135-01S. 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: 380-43372

SDG : 23D145

METHOD 3520C/8015B
PETROLEUM HYDROCARBONS BY EXTRACTION

One(1) water sample was received on 04/13/23 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. DSD020WB - 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 J8D020WL. 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 23D135-01M/23D135-01S. Refer to Matrix QC summary form for details.

Surrogate

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

Sample Analysis

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

LAB CHRONICLE
PETROLEUM HYDROCARBONS BY EXTRACTION

Client : EUROFINS EATON ANALYTICAL
Project : 380-43372

SDG NO. : 23D145
Instrument ID : D5

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis Date/Time	Extraction Date/Time	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	DSD020WB	1	NA	04/18/2313:15	04/17/2310:15	LD18010A	LD18006A	23DSD020W	Method Blank
LCS1W	J80020WL	1	NA	04/18/2314:11	04/17/2310:15	LD18013A	LD18006A	23DSD020W	Lab Control Sample (LCS)
380-43372-1	D145-01	1	NA	04/18/2317:36	04/17/2310:15	LD18024A	LD18006A	23DSD020W	Field Sample

FN - Filename
% Moist - Percent Moisture



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SAMPLE RESULTS

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

Client      : EUROFINS EATON ANALYTICAL   Date Collected: 04/11/23 10:10
Project     : 380-43372                   Date Received: 04/13/23
Batch No.   : 23D145                       Date Extracted: 04/17/23 10:15
Sample ID   : 380-43372-1                 Date Analyzed: 04/18/23 17:36
Lab Samp ID: 23D145-01                     Dilution Factor: 1
Lab File ID: LD18024A                       Matrix: WATER
Ext Btch ID: 23DSD020W                       % Moisture: NA
Calib. Ref.: LD18004A                       Instrument ID: D5
  
```

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)	
Diesel	ND	0.029	0.014	
Motor Oil	ND	0.058	0.029	
SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.430	0.575	75	60-130
Hexacosane	0.147	0.144	102	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 : 870ml Final Volume : 5ml
Prepared by : RGalan Analyzed by : SDeeso

METHOD 3520C/8015B
 PETROLEUM HYDROCARBONS BY EXTRACTION

Client	: EUROFINS EATON ANALYTICAL	Date Collected:	04/11/23 10:10
Project	: 380-43372	Date Received:	04/13/23
Batch No.	: 23D145	Date Extracted:	04/17/23 10:15
Sample ID	: 380-43372-1	Date Analyzed:	04/18/23 17:36
Lab Samp ID:	23D145-01	Dilution Factor:	1
Lab File ID:	LD18024A	Matrix:	WATER
Ext Btch ID:	23DSD020W	% Moisture:	NA
Calib. Ref.:	LD18005A	Instrument ID:	D5

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
JP5	ND	0.058	0.029

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.430	0.575	75	60-130
Hexacosane	0.147	0.144	102	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 : 870ml

Final Volume : 5ml

Prepared by : RGalan

Analyzed by : SDeeso

METHOD 3520C/8015B
 PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : EUROFINS EATON ANALYTICAL   Date Collected: 04/11/23 10:10
Project     : 380-43372                 Date Received: 04/13/23
Batch No.   : 23D145                    Date Extracted: 04/17/23 10:15
Sample ID   : 380-43372-1              Date Analyzed: 04/18/23 17:36
Lab Samp ID : 23D145-01                 Dilution Factor: 1
Lab File ID : LD18024A                  Matrix: WATER
Ext Btch ID : 23DSD020W                 % Moisture: NA
Calib. Ref. : LD18006A                  Instrument ID: D5
=====
    
```

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
JP8	ND	0.058	0.029

SURROGATE PARAMETERS	RESULT	SPK_AMT	%RECOVERY	QC LIMIT
Bromobenzene	0.430	0.575	75	60-130
Hexacosane	0.147	0.144	102	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 : 870ml Final Volume : 5ml
 Prepared by : RGalan Analyzed by : SDeeso

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QC SUMMARIES

METHOD 3520C/8015B
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

Client      : EUROFINS EATON ANALYTICAL   Date Collected: 04/17/23 10:15
Project     : 380-43372                   Date Received: 04/17/23
Batch No.   : 23D145                       Date Extracted: 04/17/23 10:15
Sample ID   : MBLK1W                       Date Analyzed: 04/18/23 13:15
Lab Samp ID: DSD020WB                      Dilution Factor: 1
Lab File ID: LD18010A                       Matrix: WATER
Ext Btch ID: 23DSD020W                      % Moisture: NA
Calib. Ref.: LD18004A                       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	0.377	0.500	75	60-130
Hexacosane	0.124	0.125	99	60-130

Notes:

```

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

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

```

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

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL
PROJECT : 380-43372
BATCH NO. : 23D145
METHOD : 3520C/8015B

MATRIX : WATER % MOISTURE:NA
DILUTION FACTOR: 1 1
SAMPLE ID : MBLK1W LCS1W
LAB SAMPLE ID : DSD020WB DSD020WL
LAB FILE ID : LD18010A LD18011A
DATE PREPARED : 04/17/23 10:15 04/17/23 10:15
DATE ANALYZED : 04/18/23 13:15 04/18/23 13:34
PREP BATCH : 23DSD020W 23DSD020W
CALIBRATION REF: LD18004A LD18004A

ACCESSION:

PARAMETERS	MBResult (mg/L)	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	QCLimit (%)
Diesel	ND	2.50	2.08	83	50-130

SURROGATE PARAMETERS	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	QCLimit (%)
Bromobenzene	0.500	0.399	80	60-130
Hexacosane	0.125	0.117	94	60-130

MB: Method Blank sample LCS: Lab Control Sample

METHOD 3520C/8015B
 PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : EUROFINS EATON ANALYTICAL   Date Collected: 04/17/23 10:15
Project    : 380-43372                   Date Received: 04/17/23
Batch No.  : 23D145                       Date Extracted: 04/17/23 10:15
Sample ID  : MBLK1W                       Date Analyzed: 04/18/23 13:15
Lab Samp ID: DSD020WB                     Dilution Factor: 1
Lab File ID: LD18010A                     Matrix: WATER
Ext Btch ID: 23DSD020W                   % Moisture: NA
Calib. Ref.: LD18005A                    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	0.377	0.500	75	60-130
Hexacosane	0.124	0.125	99	60-130

Notes:

RL : Reporting Limit

Parameter H-C Range

JP5 C8-C18

Reported ND at RL quantitated per pattern recognition.

Detection limits are reported relative to sample result significant figures.

Sample Amount : 1000ml

Final Volume : 5ml

Prepared by : RGalan

Analyzed by : SDeeso

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL
PROJECT : 380-43372
BATCH NO. : 23D145
METHOD : 3520C/8015B

MATRIX : WATER % MOISTURE:NA
DILUTION FACTOR: 1 1
SAMPLE ID : MBLK1W LCS1W
LAB SAMPLE ID : DSD020WB J5D020WL
LAB FILE ID : LD18010A LD18012A
DATE PREPARED : 04/17/23 10:15 04/17/23 10:15
DATE ANALYZED : 04/18/23 13:15 04/18/23 13:53
PREP BATCH : 23DSD020W 23DSD020W
CALIBRATION REF: LD18005A LD18005A

ACCESSION:

PARAMETERS	MBResult (mg/L)	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	QCLimit (%)
JP5	ND	2.50	1.91	76	30-160

SURROGATE PARAMETERS	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	QCLimit (%)
Bromobenzene	0.500	0.375	75	60-130
Hexacosane	0.125	0.116	93	60-130

MB: Method Blank sample LCS: Lab Control Sample

METHOD 3520C/8015B
 PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : EUROFINS EATON ANALYTICAL   Date Collected: 04/17/23 10:15
Project    : 380-43372                   Date Received: 04/17/23
Batch No.  : 23D145                       Date Extracted: 04/17/23 10:15
Sample ID  : MBLK1W                       Date Analyzed: 04/18/23 13:15
Lab Samp ID: DSD020WB                     Dilution Factor: 1
Lab File ID: LD18010A                     Matrix: WATER
Ext Btch ID: 23DSD020W                   % Moisture: NA
Calib. Ref.: LD18006A                    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	0.377	0.500	75	60-130
Hexacosane	0.124	0.125	99	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 : RGalán Analyzed by : SDeeso

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL
PROJECT : 380-43372
BATCH NO. : 23D145
METHOD : 3520C/8015B

MATRIX : WATER % MOISTURE:NA
DILUTION FACTOR: 1 1
SAMPLE ID : MBLK1W LCS1W
LAB SAMPLE ID : DSD020WB J8D020WL
LAB FILE ID : LD18010A LD18013A
DATE PREPARED : 04/17/23 10:15 04/17/23 10:15
DATE ANALYZED : 04/18/23 13:15 04/18/23 14:11
PREP BATCH : 23DSD020W 23DSD020W
CALIBRATION REF: LD18006A LD18006A

ACCESSION:

PARAMETERS	MBResult (mg/L)	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	QCLimit (%)
JP8	ND	2.50	2.01	80	30-160

SURROGATE PARAMETERS	SpikeAmt (mg/L)	LCSResult (mg/L)	LCSRec (%)	QCLimit (%)
Bromobenzene	0.500	0.460	92	60-130
Hexacosane	0.125	0.114	91	60-130

MB: Method Blank sample LCS: Lab Control Sample

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL
PROJECT : 380-43771
BATCH NO. : 23D135
METHOD : 3520C/8015B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR:	1	1	1
SAMPLE ID	: 380-43771-1	380-43771-1MS	380-43771-1MSD
LAB SAMPLE ID	: 23D135-01	23D135-01M	23D135-01S
LAB FILE ID	: LD18014A	LD18015A	LD18016A
DATE PREPARED	: 04/17/23 10:15	04/17/23 10:15	04/17/23 10:15
DATE ANALYZED	: 04/18/23 14:30	04/18/23 14:49	04/18/23 15:07
PREP BATCH	: 23DSD020W	23DSD020W	23DSD020W
CALIBRATION REF:	LD18004A	LD18004A	LD18004A

ACCESSION:

PARAMETERS	PSResult (mg/L)	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Diesel	ND	2.95	2.21	75	3.00	2.22	74	0	50-130	30

SURROGATE PARAMETERS	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	QCLimit (%)
Bromobenzene	0.590	0.355	60	0.600	0.385	64	60-130
Hexacosane	0.148	0.150	102	0.150	0.154	103	60-130

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

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL
PROJECT : 380-43771
BATCH NO. : 23D135
METHOD : 3520C/8015B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR:	1	1	1
SAMPLE ID	: 380-43771-1	380-43771-1MS	380-43771-1MSD
LAB SAMPLE ID	: 23D135-01	23D135-01M	23D135-01S
LAB FILE ID	: LD18014A	LD18017A	LD18018A
DATE PREPARED	: 04/17/23 10:15	04/17/23 10:15	04/17/23 10:15
DATE ANALYZED	: 04/18/23 14:30	04/18/23 15:26	04/18/23 15:45
PREP BATCH	: 23DSD020W	23DSD020W	23DSD020W
CALIBRATION REF:	LD18005A	LD18005A	LD18005A

ACCESSION:

PARAMETERS	PSResult (mg/L)	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
JP5	ND	2.62	2.13	81	2.62	2.05	78	4	30-160	30

SURROGATE PARAMETERS	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	QCLimit (%)
Bromobenzene	0.525	0.414	79	0.525	0.423	81	60-130
Hexacosane	0.131	0.130	99	0.131	0.128	98	60-130

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

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT : EUROFINS EATON ANALYTICAL
PROJECT : 380-43771
BATCH NO. : 23D135
METHOD : 3520C/8015B

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR:	1	1	1
SAMPLE ID	: 380-43771-1	380-43771-1MS	380-43771-1MSD
LAB SAMPLE ID	: 23D135-01	23D135-01M	23D135-01S
LAB FILE ID	: LD18014A	LD18019A	LD18020A
DATE PREPARED	: 04/17/23 10:15	04/17/23 10:15	04/17/23 10:15
DATE ANALYZED	: 04/18/23 14:30	04/18/23 16:03	04/18/23 16:22
PREP BATCH	: 23DSD020W	23DSD020W	23DSD020W
CALIBRATION REF:	LD18006A	LD18006A	LD18006A

ACCESSION:

PARAMETERS	PSResult (mg/L)	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
JP8	ND	2.75	2.52	92	2.78	2.63	95	4	30-160	30

SURROGATE PARAMETERS	SpikeAmt (mg/L)	MSResult (mg/L)	MSRec (%)	SpikeAmt (mg/L)	MSDResult (mg/L)	MSDRec (%)	QCLimit (%)
Bromobenzene	0.550	0.493	90	0.555	0.559	101	60-130
Hexacosane	0.138	0.156	113	0.139	0.159	115	60-130

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

April 28, 2023

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

Project Name: RED-HILL Project # 38001111 Job # 380-43372-1
 Physis Project ID: 1407003-392

Dear Rachelle,

Enclosed are the analytical results for the sample submitted to PHYSIS Environmental Laboratories, Inc. (PHYSIS) on 4/13/2023. 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: 1407003-392

RED-HILL Project # 38001111 Job # 380-43372-1

Total Samples: 1

PHYSIS ID	Sample ID	Description	Date	Time	Matrix	Sample Type
105107	AIEA GULCH WELLS PUMP 2	380-43372-1	4/11/2023	10:10	Samplewater	Not Specified

- 1
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- 3
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ABBREVIATIONS and ACRONYMS

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

QUALITY ASSURANCE SUMMARY

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

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

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

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

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

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

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

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

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

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

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

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

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

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

PHYSIS QUALIFIER CODES

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

CASE NARRATIVE

QUALIFIER NOTES

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

ND

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

BIANALYTICALS REPORT

TERRA AURA
ENVIRONMENTAL LABORATORIES, INC.

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Base/Neutral Extractable Compounds

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Sample ID: 105107-R1	AIEA GULCH WELLS PUMP 2 380-4		Matrix: Samplewater				Sampled:	11-Apr-23 10:10		Received:	13-Apr-23
Disalicylidenepropanediamine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-41036	13-Apr-23	26-Apr-23



Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Sample ID: 105107-R1	AIEA GULCH WELLS PUMP 2 380-4 Matrix: Samplewater						Sampled:	11-Apr-23 10:10	Received:	13-Apr-23	
(d10-Acenaphthene)	EPA 625.1	% Recovery	90	1			Total		O-41036	13-Apr-23	26-Apr-23
(d10-Phenanthrene)	EPA 625.1	% Recovery	95	1			Total		O-41036	13-Apr-23	26-Apr-23
(d12-Chrysene)	EPA 625.1	% Recovery	95	1			Total		O-41036	13-Apr-23	26-Apr-23
(d12-Perylene)	EPA 625.1	% Recovery	88	1			Total		O-41036	13-Apr-23	26-Apr-23
(d8-Naphthalene)	EPA 625.1	% Recovery	70	1			Total		O-41036	13-Apr-23	26-Apr-23
1-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41036	13-Apr-23	26-Apr-23
1-Methylphenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41036	13-Apr-23	26-Apr-23
2,3,5-Trimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41036	13-Apr-23	26-Apr-23
2,6-Dimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41036	13-Apr-23	26-Apr-23
2-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41036	13-Apr-23	26-Apr-23
Acenaphthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41036	13-Apr-23	26-Apr-23
Acenaphthylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41036	13-Apr-23	26-Apr-23
Anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41036	13-Apr-23	26-Apr-23
Benz[a]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41036	13-Apr-23	26-Apr-23
Benzo[a]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41036	13-Apr-23	26-Apr-23
Benzo[b]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41036	13-Apr-23	26-Apr-23
Benzo[e]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41036	13-Apr-23	26-Apr-23
Benzo[g,h,i]perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41036	13-Apr-23	26-Apr-23
Benzo[k]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41036	13-Apr-23	26-Apr-23
Biphenyl	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41036	13-Apr-23	26-Apr-23
Chrysene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41036	13-Apr-23	26-Apr-23
D benz[a,h]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41036	13-Apr-23	26-Apr-23
D benzo[a,l]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41036	13-Apr-23	26-Apr-23
D benzothiophene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41036	13-Apr-23	26-Apr-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-41036	13-Apr-23	26-Apr-23
Fluorene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41036	13-Apr-23	26-Apr-23
Indeno[1,2,3-cd]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41036	13-Apr-23	26-Apr-23
Naphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41036	13-Apr-23	26-Apr-23
Perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41036	13-Apr-23	26-Apr-23
Phenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41036	13-Apr-23	26-Apr-23
Pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-41036	13-Apr-23	26-Apr-23



QUALITY CONTROL REPORT

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Base/Neutral Extractable Compounds

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE SOURCE		ACCURACY		PRECISION		QA CODEc
							LEVEL	RESULT	%	LIMITS	%	LIMITS	
Sample ID: 105106-B1		QAQC Procedural Blank			Matrix: BlankMatrix		Sampled:		Received:				
		Method: EPA 625.1			Batch ID: O-41036		Prepared: 13-Apr-23		Analyzed: 26-Apr-23				
Disalicylideneprapanediamin	Total	ND	1	0.05	0.1	µg/L							
Sample ID: 105106-BS1		QAQC Procedural Blank			Matrix: BlankMatrix		Sampled:		Received:				
		Method: EPA 625.1			Batch ID: O-41036		Prepared: 13-Apr-23		Analyzed: 26-Apr-23				
Disalicylideneprapanediamin	Total	56.9	1	0.05	0.1	µg/L	50	0	114	50 - 150%	PASS		
Sample ID: 105106-BS2		QAQC Procedural Blank			Matrix: BlankMatrix		Sampled:		Received:				
		Method: EPA 625.1			Batch ID: O-41036		Prepared: 13-Apr-23		Analyzed: 26-Apr-23				
Disalicylideneprapanediamin	Total	71.8	1	0.05	0.1	µg/L	50	0	144	50 - 150%	PASS	23	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: 105106-B1		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:		Received:		
		Method: EPA 625.1			Batch ID: O-41036			Prepared: 13-Apr-23		Analyzed: 26-Apr-23		
(d10-Acenaphthene)	Total	97	1				% Recovery	100	97	27 - 133%	PASS	
(d10-Phenanthrene)	Total	99	1				% Recovery	100	99	43 - 129%	PASS	
(d12-Chrysene)	Total	97	1				% Recovery	100	97	52 - 144%	PASS	
(d12-Perylene)	Total	94	1				% Recovery	100	94	36 - 161%	PASS	
(d8-Naphthalene)	Total	86	1				% Recovery	100	86	25 - 125%	PASS	
1-Methylnaphthalene	Total	ND	1	0.001	0.005	µg/L						
1-Methylphenanthrene	Total	ND	1	0.001	0.005	µg/L						
2,3,5-Trimethylnaphthalene	Total	ND	1	0.001	0.005	µg/L						
2,6-Dimethylnaphthalene	Total	ND	1	0.001	0.005	µg/L						
2-Methylnaphthalene	Total	ND	1	0.001	0.005	µg/L						
Acenaphthene	Total	ND	1	0.001	0.005	µg/L						
Acenaphthylene	Total	ND	1	0.001	0.005	µg/L						
Anthracene	Total	ND	1	0.001	0.005	µg/L						
Benz[a]anthracene	Total	ND	1	0.001	0.005	µg/L						
Benzo[a]pyrene	Total	ND	1	0.001	0.005	µg/L						
Benzo[b]fluoranthene	Total	ND	1	0.001	0.005	µg/L						
Benzo[e]pyrene	Total	ND	1	0.001	0.005	µg/L						
Benzo[g,h,i]perylene	Total	ND	1	0.001	0.005	µg/L						
Benzo[k]fluoranthene	Total	ND	1	0.001	0.005	µg/L						
Biphenyl	Total	ND	1	0.001	0.005	µg/L						
Chrysene	Total	ND	1	0.001	0.005	µg/L						
Dibenz[a,h]anthracene	Total	ND	1	0.001	0.005	µg/L						
Dibenzo[a,l]pyrene	Total	ND	1	0.001	0.005	µg/L						
Dibenzothiophene	Total	ND	1	0.001	0.005	µg/L						

Polynuclear Aromatic Hydrocarbons

QUALITY CONTROL REPORT

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

Polynuclear Aromatic Hydrocarbons

QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE	SOURCE	ACCURACY	PRECISION	QA CODEc	
							LEVEL	RESULT	%	LIMITS	%	LIMITS
Sample ID: 105106-BS1		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:		Received:		
Method: EPA 625.1		Batch ID: O-41036			Prepared: 13-Apr-23		Analyzed: 26-Apr-23					
(d10-Acenaphthene)	Total	85	1			% Recovery	100	0	85	27 - 133%	PASS	
(d10-Phenanthrene)	Total	95	1			% Recovery	100	0	95	43 - 129%	PASS	
(d12-Chrysene)	Total	98	1			% Recovery	100	0	98	52 - 144%	PASS	
(d12-Perylene)	Total	92	1			% Recovery	100	0	92	36 - 161%	PASS	
(d8-Naphthalene)	Total	69	1			% Recovery	100	0	69	25 - 125%	PASS	
1-Methylnaphthalene	Total	0.344	1	0.001	0.005	µg/L	0.5	0	69	31 - 128%	PASS	
1-Methylphenanthrene	Total	0.434	1	0.001	0.005	µg/L	0.5	0	87	66 - 127%	PASS	
2,3,5-Trimethylnaphthalene	Total	0.406	1	0.001	0.005	µg/L	0.5	0	81	55 - 122%	PASS	
2,6-Dimethylnaphthalene	Total	0.372	1	0.001	0.005	µg/L	0.5	0	74	48 - 120%	PASS	
2-Methylnaphthalene	Total	0.342	1	0.001	0.005	µg/L	0.5	0	68	47 - 130%	PASS	
Acenaphthene	Total	0.386	1	0.001	0.005	µg/L	0.5	0	77	53 - 131%	PASS	
Acenaphthylene	Total	0.381	1	0.001	0.005	µg/L	0.5	0	76	43 - 140%	PASS	
Anthracene	Total	0.431	1	0.001	0.005	µg/L	0.5	0	86	58 - 135%	PASS	
Benz[a]anthracene	Total	0.438	1	0.001	0.005	µg/L	0.5	0	88	55 - 145%	PASS	
Benzo[a]pyrene	Total	0.44	1	0.001	0.005	µg/L	0.5	0	88	51 - 143%	PASS	
Benzo[b]fluoranthene	Total	0.445	1	0.001	0.005	µg/L	0.5	0	89	46 - 165%	PASS	
Benzo[e]pyrene	Total	0.435	1	0.001	0.005	µg/L	0.5	0	87	42 - 152%	PASS	
Benzo[g,h,i]perylene	Total	0.45	1	0.001	0.005	µg/L	0.5	0	90	63 - 133%	PASS	
Benzo[k]fluoranthene	Total	0.444	1	0.001	0.005	µg/L	0.5	0	89	56 - 145%	PASS	
Biphenyl	Total	0.369	1	0.001	0.005	µg/L	0.5	0	74	56 - 119%	PASS	
Chrysene	Total	0.437	1	0.001	0.005	µg/L	0.5	0	87	56 - 141%	PASS	
Dibenz[a,h]anthracene	Total	0.467	1	0.001	0.005	µg/L	0.5	0	93	55 - 150%	PASS	
Dibenzo[a,l]pyrene	Total	0.509	1	0.001	0.005	µg/L	0.5	0	102	50 - 150%	PASS	
Dibenzothiophene	Total	0.432	1	0.001	0.005	µg/L	0.5	0	86	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	0.443	1	0.001	0.005	µg/L	0.5	0	89	60 - 146%	PASS		
Fluorene	Total	0.411	1	0.001	0.005	µg/L	0.5	0	82	58 - 131%	PASS		
Indeno[1,2,3-cd]pyrene	Total	0.47	1	0.001	0.005	µg/L	0.5	0	94	50 - 151%	PASS		
Naphthalene	Total	0.334	1	0.001	0.005	µg/L	0.5	0	67	41 - 126%	PASS		
Perylene	Total	0.418	1	0.001	0.005	µg/L	0.5	0	84	48 - 141%	PASS		
Phenanthrene	Total	0.435	1	0.001	0.005	µg/L	0.5	0	87	67 - 127%	PASS		
Pyrene	Total	0.44	1	0.001	0.005	µg/L	0.5	0	88	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: 105106-BS2		QAQC Procedural Blank			Matrix: BlankMatrix			Sampled:			Received:			
Method: EPA 625.1		Batch ID: O-41036			Prepared: 13-Apr-23			Analyzed: 26-Apr-23						
(d10-Acenaphthene)	Total	84	1			% Recovery	100	0	84	27 - 133%	PASS	1	30	PASS
(d10-Phenanthrene)	Total	92	1			% Recovery	100	0	92	43 - 129%	PASS	3	30	PASS
(d12-Chrysene)	Total	93	1			% Recovery	100	0	93	52 - 144%	PASS	5	30	PASS
(d12-Perylene)	Total	88	1			% Recovery	100	0	88	36 - 161%	PASS	4	30	PASS
(d8-Naphthalene)	Total	74	1			% Recovery	100	0	74	25 - 125%	PASS	7	30	PASS
1-Methylnaphthalene	Total	0.371	1	0.001	0.005	µg/L	0.5	0	74	31 - 128%	PASS	7	30	PASS
1-Methylphenanthrene	Total	0.439	1	0.001	0.005	µg/L	0.5	0	88	66 - 127%	PASS	1	30	PASS
2,3,5-Trimethylnaphthalene	Total	0.414	1	0.001	0.005	µg/L	0.5	0	83	55 - 122%	PASS	2	30	PASS
2,6-Dimethylnaphthalene	Total	0.385	1	0.001	0.005	µg/L	0.5	0	77	48 - 120%	PASS	4	30	PASS
2-Methylnaphthalene	Total	0.371	1	0.001	0.005	µg/L	0.5	0	74	47 - 130%	PASS	8	30	PASS
Acenaphthene	Total	0.398	1	0.001	0.005	µg/L	0.5	0	80	53 - 131%	PASS	4	30	PASS
Acenaphthylene	Total	0.389	1	0.001	0.005	µg/L	0.5	0	78	43 - 140%	PASS	3	30	PASS
Anthracene	Total	0.434	1	0.001	0.005	µg/L	0.5	0	87	58 - 135%	PASS	1	30	PASS
Benz[a]anthracene	Total	0.43	1	0.001	0.005	µg/L	0.5	0	86	55 - 145%	PASS	2	30	PASS
Benzo[a]pyrene	Total	0.433	1	0.001	0.005	µg/L	0.5	0	87	51 - 143%	PASS	1	30	PASS
Benzo[b]fluoranthene	Total	0.443	1	0.001	0.005	µg/L	0.5	0	89	46 - 165%	PASS	0	30	PASS
Benzo[e]pyrene	Total	0.435	1	0.001	0.005	µg/L	0.5	0	87	42 - 152%	PASS	0	30	PASS
Benzo[g,h,i]perylene	Total	0.454	1	0.001	0.005	µg/L	0.5	0	91	63 - 133%	PASS	1	30	PASS
Benzo[k]fluoranthene	Total	0.442	1	0.001	0.005	µg/L	0.5	0	88	56 - 145%	PASS	1	30	PASS
Biphenyl	Total	0.39	1	0.001	0.005	µg/L	0.5	0	78	56 - 119%	PASS	5	30	PASS
Chrysene	Total	0.429	1	0.001	0.005	µg/L	0.5	0	86	56 - 141%	PASS	1	30	PASS
Dibenz[a,h]anthracene	Total	0.48	1	0.001	0.005	µg/L	0.5	0	96	55 - 150%	PASS	3	30	PASS
Dibenzo[a,l]pyrene	Total	0.525	1	0.001	0.005	µg/L	0.5	0	105	50 - 150%	PASS	3	30	PASS
Dibenzothiophene	Total	0.433	1	0.001	0.005	µg/L	0.5	0	87	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	0.447	1	0.001	0.005	µg/L	0.5	0	89	60 - 146%	PASS	0	30	PASS
Fluorene	Total	0.419	1	0.001	0.005	µg/L	0.5	0	84	58 - 131%	PASS	2	30	PASS
Indeno[1,2,3-cd]pyrene	Total	0.473	1	0.001	0.005	µg/L	0.5	0	95	50 - 151%	PASS	1	30	PASS
Naphthalene	Total	0.369	1	0.001	0.005	µg/L	0.5	0	74	41 - 126%	PASS	10	30	PASS
Perylene	Total	0.426	1	0.001	0.005	µg/L	0.5	0	85	48 - 141%	PASS	1	30	PASS
Phenanthrene	Total	0.437	1	0.001	0.005	µg/L	0.5	0	87	67 - 127%	PASS	0	30	PASS
Pyrene	Total	0.44	1	0.001	0.005	µg/L	0.5	0	88	54 - 156%	PASS	0	30	PASS

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PHYSIS

TENTATIVELY

IDENTIFIED COMPOUNDS

ENVIRONMENTAL LABORATORIES, INC.

Innovative Solutions for Nature

Sample ID: 105107

Retention Time	Area (% of total)	Concentration (ng/L)	Library/ID	Cas Number	Match Quality (%)
35.4986	5.8852	1111	Anthracene-D10-	1719-06-8	97
10.6543	2.6725	505	1,5-Heptadien-4-one, 3,3,6-trimethyl-	546-49-6	88
13.7689	1.1742	222	Benzoic acid	65-85-0	96
22.5422	0.8990	170	Phthalimide	85-41-6	98
41.7228	0.7940	150	n-Hexadecanoic acid	57-10-3	94

Concentration estimated using the response for Anthracene-d10

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Sample ID: Lab Blank B1_41036

Retention Time	Area (% of total)	Concentration (ng/L)	Library/ID	Cas Number	Match Quality (%)
35.5061	6.7927	1111	Anthracene-D10-	1719-06-8	97
10.6544	2.4342	398	1,5-Heptadien-4-one, 3,3,6-trimethyl-	546-49-6	90
27.5884	0.6654	109	Diethyl Phthalate	84-66-2	98

Concentration estimated using the response for Anthracene-d10

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PERFORMANCE CHAIN OF CUSTODY

TERRA ENVIRONMENTAL LABORATORIES, INC. AURA

Innovative Solutions for Nature

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Eurofins Eaton Analytical Pomona
 941 Corporate Center Drive
 Pomona, CA 91768-2842
 Phone: 628-398-1100

Chain of Custody Record



Environment Testing

Client Information (Sub Contract Lab)		Sampler:	Lab Pk:	Carrier/Tracking No(s):	COC No:				
Client Contact:	Phone:	Arada, Rachelle	Rachelle.Arada@eurofins.com	State of Origin:	380-47844.1				
Company:	Physis Environmental Laboratories	Accreditations Required (See note):	State - Hawaii		Page: 1 of 1				
Address:	1804 Wright Circle,	Due Date Requested:	4/26/2023	Analysis Requested	380-43372-1				
City:	Anaheim	TAT Requested (days):			Lab #:				
State, Zip:	CA, 92806				380-43372-1				
Phone:		PO #:			Preservation Codes:				
Email:		W/O #:			A - HCl B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amelcer H - Acetic Acid I - Ice J - DI Water K - EDTA L - EDTA M - Hexane N - None O - AsNaO2 P - Na2CO3 Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)				
Project Name:	RED-HILL	Project #:	38001111		Other:				
Site:	Honolulu BWS Siles	SSCW#:							
Sample Identification - Client ID (Lab ID)		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Seawater, Other)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Total Number of containers	Special Instructions/Note:
AIEA GULCH WELLS PUMP 2 (380-43372-1)		4/1/23	10:10	Hawaiian	Water	X	X	2	See Attached Instructions
<p>Note: Since laboratory accreditation is 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.</p>									
Possible Hazard Identification		<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months							
Unconfirmed		<input type="checkbox"/> Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)							
Deliverable Requested: I, II, III, IV, Other (specify)		Primary Deliverable Rank: 2		Special Instructions/QC Requirements:					
Empty Kit Relinquished by:		Date:							
Relinquished by:		Date/Time:	4/13/23	1235	Company:	Plymco			
Relinquished by:		Date/Time:							
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:							
Cooler Temperature(s) °C and Other Remarks:									



Project Iteration ID: 1407003-392
 Client Name: Eurofins Eaton Analytical
 Project Name: RED-HILL Project # 38001111 Job # 380-43372-1
 COC Page Number: 2 of 2
 Bottle Label Color: NA

Sample Receipt Summary

Receiving Info

- Initials Received By: AG
- Date Received: 4/13/23
- Time Received: 12:35
- Client Name: Eurofins
- Courier Information: (Please circle)
 - Client
 - UPS
 - Area Fast
 - DRS
 - FedEx
 - GSO/GLS
 - Ontrac
 - PAMS
 - PHYSIS Driver:
 - Start Time: _____
 - End Time: _____
 - Total Mileage: _____
 - Number of Pickups: _____
- Container Information: (Please put the # of containers or circle none)
 - Cooler
 - Styrofoam Cooler
 - Boxes
 - None
 - Carboy(s)
 - Carboy Trash Can(s)
 - Carboy Cap(s)
 - Other _____
- What type of ice was used: (Please circle any that apply)
 - Wet Ice
 - Blue Ice
 - Dry Ice
 - Water
 - None
- Randomly Selected Samples Temperature (°C): 1.3 Used I/R Thermometer # 1

Inspection Info

- Initials Inspected By: RGH

Sample Integrity Upon Receipt:

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

Notes:

Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-43372-1

Login Number: 43372

List Number: 1

Creator: Elyas, Matthew

List Source: Eurofins Eaton Analytical Pomona

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	Field sampler's name is missing.
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	