eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

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

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JOB DESCRIPTION

RED-HILL

JOB NUMBER

380-38620-1

Eurofins Eaton Analytical Pomona
941 Corporate Center Drive
Pomona CA 91768-2642

See page two for job notes and contact information.

Eurofins Eaton Analytical Pomona

Job Notes

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

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

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

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

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

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

Compliance Statement

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

Authorization

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Authorized for release by
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Table of Contents

Definitions/Glossary

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

Job ID: 380-38620-1

Qualifiers

LCMS

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

Subcontract

Qualifier	Qualifier Description
U	This analyte was not detected.

Glossary

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

Job ID: 380-38620-1

Laboratory: Eurofins Eaton Analytical Pomona

Narrative

Job Narrative
380-38620-1

Comments
EPA 537.1 and EPA 533 are two distinct methods for the analysis of PFAS in drinking water. The analyses are conducted on differing instrumentation, with calibrations, extraction solvents and sample preservatives being dissimilar among the two methods. Therefore it is probable and not unexpected to see the methods having slight variations in analytical results.

No additional comments.

Receipt
The samples were received on 2/23/2023 10:30 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.6º C.

Receipt Exceptions
One of two Amber Glass 1 Liter - Sodium Thiosulfate containers was received with a loose cap - there was less than half the volume remaining in the container. There is sufficient volume to run the analysis with the full Amber Glass 1 Liter - Sodium Thiosulfate.AIEA GULCH WELLS PUMP 2 (380-38620-2).

GC/MS Semi VOA
Method 525.2: Data removed from the report due to the following QC issues:

LCS 810-50407/23-A, 2,4-Dinitrotoluene and 2,6-Dinitrotoluene failed low (68% and 62%, respectively) due to poor extraction efficiency with the current extraction media. Additionally, Chloroneb failed high (156%) outside the acceptance limits of 70-130%.

Internal standard (ISTD) response for the following sample was outside of acceptance limits: (380-38620-F-1-A MS). The sample(s) was not re-extracted due to insufficient volume IS-Chrysene-d12 @ 130.5% (Range 70-130%). An overall high bias to the IS had an impact on the low bias to several analytes.

The laboratory control sample (LCS) for preparation batch 810-50406 and analytical batch 810-50520 recovered outside control limits for the following analytes: 2,4-Dinitrotoluene @ 59.7%, 2,6-Dinitrotoluene @ 58.6% (Range 70-130%).

The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 810-50406 and analytical batch 810-50520 was outside control limits. Sample matrix interference is suspected. 2,4-Dinitrotoluene @ 54%, 2,6-Dinitroroluene @ 54%, Anthracene @ 29%, Benzo[a]pyrene @ 44%, Benzo (g,h,i)perylene @ 67%, Benzo(k)fluoranthene @ 69%, Dibenzo(a,h)anthracene @ 66%, Indeno(1,2,3-cd)pyrene @ 66% trans-chlordane @ 69% (Range 70-130%).

Internal standard (ISTD) response for the following sample was outside of acceptance limits: (LLCS 810-50406/3-A). The sample(s) was not re-analyzed due to IS-p-Terphenyl-d14 @ 166.1% (Range 70-130%) being a tracking standard only, and having no impact on data quantitation.

The laboratory control sample (LCS) for preparation batch 810-50576 and analytical batch 810-50698 recovered outside control limits for the following analytes: 2,4-Dinitrotoluene @ 55% and 2,6-Dinitrotoluene @ 56%, 2,4-Dinitrotoluene and 2,6-Dinitrotoluene extract poorly on the currently available extraction medium.

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

LCMS
Method 533: The continuing calibration verification (CCV) (CCV 810-52376/24) associated with batch 810-52376 recovered above the upper control limit for Hexafluoropropylene Oxide Dimer Acid (HFPO-DA) (139%, 70-130% limits). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. Results are not affected.

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

Subcontract non-Sister

Job ID: 380-38620-1 (Continued)

Laboratory: Eurofins Eaton Analytical Pomona (Continued)

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: 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: 380-38620-1

Client Sample ID: AIEA WELLS PUMPS 1&2 P2 (260) (331-203-TP400)

Lab Sample ID: 380-38620-1

No Detections.

Client Sample ID: AIEA GULCH WELLS PUMP 2 (331-202-TP072)

Lab Sample ID: 380-38620-2

No Detections.

Client Sample ID: HALAWA WELLS UNITS 1&2 P1 (331-206-TP065)

Lab Sample ID: 380-38620-3

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	2.5		2.0		ng/L	1		533	Total/NA
Perfluorohexanoic acid (PFHxA)	2.0		2.0		ng/L	1		533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.2		2.0		ng/L	1		533	Total/NA
Perfluorooctanoic acid (PFOA)	2.2		2.0		ng/L	1		533	Total/NA
Perfluoropentanoic acid (PFPeA)	2.2		2.0		ng/L	1		533	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.3		2.0		ng/L	1		537.1	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.1		2.0		ng/L	1		537.1	Total/NA
Perfluorooctanoic acid (PFOA)	2.4		2.0		ng/L	1		537.1	Total/NA

Client Sample ID: TB:AIEA GULCH WELLS P2 (331-202-TP072)

Lab Sample ID: 380-38620-4

No Detections.

Client Sample ID: TB: AIEA WELLS PUMPS 1&2 P2 (260) (331-203-TP400)

Lab Sample ID: 380-38620-5

No Detections.

Client Sample ID: TB: HALAWA WELLS UNITS 1&2 P1 (331-206-TP065)

Lab Sample ID: 380-38620-6

No Detections.

Client Sample ID: FB HALAWA WELLS UNIT 1&2 P1

Lab Sample ID: 380-38620-9

No Detections.

This Detection Summary does not include radiochemical test results.

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

Job ID: 380-38620-1

Client Sample ID: AIEA WELLS PUMPS 1&2 P2 (260) (331-203-TP400)

Lab Sample ID: 380-38620-1

Date Collected: 02/21/23 10:17

Matrix: Drinking Water

Date Received: 02/23/23 10:30

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:16	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:16	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:16	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:16	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:16	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:16	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:16	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:16	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:16	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:16	1
Perfluorononanoic acid (PFNA)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:16	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:16	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:16	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:16	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:16	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:16	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:16	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:16	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:16	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:16	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:16	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:16	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:16	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:16	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:16	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*63*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:16*	*1*
13C6 PFDA	*72*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:16*	*1*
13C5 PFHxA	*73*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:16*	*1*
13C4 PFHpA	*74*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:16*	*1*
13C8 PFOA	*73*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:16*	*1*
13C9 PFNA	*72*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:16*	*1*
13C7 PFUnA	*71*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:16*	*1*
13C2 PFDoA	*73*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:16*	*1*
13C4 PFBA	*77*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:16*	*1*
13C5 PFPeA	*71*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:16*	*1*
13C3 PFBS	*95*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:16*	*1*
13C3 PFHxS	*98*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:16*	*1*

Client Sample ID: AIEA WELLS PUMPS 1&2 P2 (260) (331-203-TP400)
Date Collected: 02/21/23 10:17
Date Received: 02/23/23 10:30

Lab Sample ID: 380-38620-1
Matrix: Drinking Water

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

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOS	*94*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:16*	*1*
13C2-4:2-FTS	*92*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:16*	*1*
13C2-6:2-FTS	*92*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:16*	*1*
13C2-8:2-FTS	*97*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:16*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:05	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:05	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:05	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:05	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:05	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:05	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:05	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:05	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:05	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:05	1
Perfluorononanoic acid (PFNA)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:05	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:05	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:05	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:05	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:05	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:05	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:05	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*115*		*70 - 130*	*03/02/23 07:29*	*03/03/23 23:05*	*1*
13C2 PFDA	*116*		*70 - 130*	*03/02/23 07:29*	*03/03/23 23:05*	*1*
d5-NEtFOSAA	*112*		*70 - 130*	*03/02/23 07:29*	*03/03/23 23:05*	*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		02/24/23 00:00	03/04/23 22:40	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 22:40	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 22:40	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 22:40	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 22:40	1
Acenaphthene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 22:40	1
Acenaphthylene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 22:40	1
Anthracene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 22:40	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 22:40	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 22:40	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 22:40	1

Client Sample ID: AIEA WELLS PUMPS 1&2 P2 (260) (331-203-TP400)

Lab Sample ID: 380-38620-1

Date Collected: 02/21/23 10:17
Date Received: 02/23/23 10:30

Matrix: Drinking Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[e]pyrene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 22:40	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 22:40	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 22:40	1
Biphenyl	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 22:40	1
Chrysene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 22:40	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 22:40	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 22:40	1
Dibenzothiophene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 22:40	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		02/24/23 00:00	03/04/23 22:40	1
Fluoranthene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 22:40	1
Fluorene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 22:40	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 22:40	1
Naphthalene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 22:40	1
Perylene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 22:40	1
Phenanthrene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 22:40	1
Pyrene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 22:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
(d10-Acenaphthene)	*79*		*27 - 133*	*02/24/23 00:00*	*03/04/23 22:40*	*1*
(d10-Phenanthrene)	*82*		*43 - 129*	*02/24/23 00:00*	*03/04/23 22:40*	*1*
(d12-Chrysene)	*79*		*52 - 144*	*02/24/23 00:00*	*03/04/23 22:40*	*1*
(d12-Perylene)	*74*		*36 - 161*	*02/24/23 00:00*	*03/04/23 22:40*	*1*
(d8-Naphthalene)	*72*		*25 - 125*	*02/24/23 00:00*	*03/04/23 22:40*	*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			02/25/23 15:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
BROMOFLUOROBENZENE	*91*		*60 - 140*		*02/25/23 15:40*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DIESEL	ND	U	0.026		mg/L			03/06/23 18:04	1
MOTOR OIL	ND	U	0.052		mg/L			03/06/23 18:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
BROMOBENZENE	*91*		*60 - 130*		*03/06/23 18:04*	*1*
HEXACOSANE	*115*		*60 - 130*		*03/06/23 18:04*	*1*

Client Sample ID: AIEA GULCH WELLS PUMP 2 (331-202-TP072)

Lab Sample ID: 380-38620-2

Date Collected: 02/21/23 10:40
Date Received: 02/23/23 10:30

Matrix: Drinking Water

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:29	1

Client Sample ID: AIEA GULCH WELLS PUMP 2 (331-202-TP072)
Date Collected: 02/21/23 10:40
Date Received: 02/23/23 10:30

Lab Sample ID: 380-38620-2
Matrix: Drinking Water

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:29	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:29	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:29	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:29	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:29	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:29	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:29	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:29	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:29	1
Perfluorononanoic acid (PFNA)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:29	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:29	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:29	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:29	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:29	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:29	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:29	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:29	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:29	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:29	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:29	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:29	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:29	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:29	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:29	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*65*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:29*	*1*
13C6 PFDA	*71*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:29*	*1*
13C5 PFHxA	*72*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:29*	*1*
13C4 PFHpA	*72*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:29*	*1*
13C8 PFOA	*70*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:29*	*1*
13C9 PFNA	*69*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:29*	*1*
13C7 PFUnA	*73*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:29*	*1*
13C2 PFDoA	*78*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:29*	*1*
13C4 PFBA	*77*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:29*	*1*
13C5 PFPeA	*72*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:29*	*1*
13C3 PFBS	*100*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:29*	*1*
13C3 PFHxS	*100*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:29*	*1*
13C8 PFOS	*97*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:29*	*1*
13C2-4:2-FTS	*94*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:29*	*1*

Client Sample ID: AIEA GULCH WELLS PUMP 2 (331-202-TP072)

Lab Sample ID: 380-38620-2

Date Collected: 02/21/23 10:40

Matrix: Drinking Water

Date Received: 02/23/23 10:30

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

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2-6:2-FTS	*98*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:29*	*1*
13C2-8:2-FTS	*103*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:29*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:16	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:16	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:16	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:16	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:16	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:16	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:16	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:16	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:16	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:16	1
Perfluorononanoic acid (PFNA)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:16	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:16	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:16	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:16	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:16	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:16	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:16	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*112*		*70 - 130*	*03/02/23 07:29*	*03/03/23 23:16*	*1*
13C2 PFDA	*115*		*70 - 130*	*03/02/23 07:29*	*03/03/23 23:16*	*1*
d5-NEtFOSAA	*106*		*70 - 130*	*03/02/23 07:29*	*03/03/23 23:16*	*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		02/24/23 00:00	03/05/23 00:24	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 00:24	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 00:24	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 00:24	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 00:24	1
Acenaphthene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 00:24	1
Acenaphthylene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 00:24	1
Anthracene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 00:24	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 00:24	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 00:24	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 00:24	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 00:24	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 00:24	1

Client Sample ID: AIEA GULCH WELLS PUMP 2 (331-202-TP072)

Lab Sample ID: 380-38620-2

Date Collected: 02/21/23 10:40
Date Received: 02/23/23 10:30

Matrix: Drinking Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 00:24	1
Biphenyl	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 00:24	1
Chrysene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 00:24	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 00:24	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 00:24	1
Dibenzothiophene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 00:24	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		02/24/23 00:00	03/05/23 00:24	1
Fluoranthene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 00:24	1
Fluorene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 00:24	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 00:24	1
Naphthalene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 00:24	1
Perylene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 00:24	1
Phenanthrene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 00:24	1
Pyrene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 00:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
(d10-Acenaphthene)	*82*		*27 - 133*	*02/24/23 00:00*	*03/05/23 00:24*	*1*
(d10-Phenanthrene)	*84*		*43 - 129*	*02/24/23 00:00*	*03/05/23 00:24*	*1*
(d12-Chrysene)	*82*		*52 - 144*	*02/24/23 00:00*	*03/05/23 00:24*	*1*
(d12-Perylene)	*80*		*36 - 161*	*02/24/23 00:00*	*03/05/23 00:24*	*1*
(d8-Naphthalene)	*77*		*25 - 125*	*02/24/23 00:00*	*03/05/23 00:24*	*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			02/25/23 17:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
BROMOFLUOROBENZENE	*95*		*60 - 140*		*02/25/23 17:32*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DIESEL	ND	U	0.028		mg/L			03/06/23 18:22	1
MOTOR OIL	ND	U	0.056		mg/L			03/06/23 18:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
BROMOBENZENE	*86*		*60 - 130*		*03/06/23 18:22*	*1*
HEXACOSANE	*107*		*60 - 130*		*03/06/23 18:22*	*1*

Client Sample ID: HALAWA WELLS UNITS 1&2 P1 (331-206-TP065)

Lab Sample ID: 380-38620-3

Date Collected: 02/21/23 09:48
Date Received: 02/23/23 10:30

Matrix: Drinking Water

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:43	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:43	1

Client Sample ID: HALAWA WELLS UNITS 1&2 P1 (331-206-TP065)
Date Collected: 02/21/23 09:48
Date Received: 02/23/23 10:30

Lab Sample ID: 380-38620-3
Matrix: Drinking Water

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:43	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:43	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:43	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:43	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:43	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:43	1
Perfluorohexanesulfonic acid (PFHxS)	**2.5**		2.0		ng/L		03/20/23 06:26	03/21/23 21:43	1
Perfluorohexanoic acid (PFHxA)	**2.0**		2.0		ng/L		03/20/23 06:26	03/21/23 21:43	1
Perfluorononanoic acid (PFNA)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:43	1
Perfluorooctanesulfonic acid (PFOS)	**2.2**		2.0		ng/L		03/20/23 06:26	03/21/23 21:43	1
Perfluorooctanoic acid (PFOA)	**2.2**		2.0		ng/L		03/20/23 06:26	03/21/23 21:43	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:43	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:43	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:43	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:43	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:43	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:43	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:43	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:43	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:43	1
Perfluoropentanoic acid (PFPeA)	**2.2**		2.0		ng/L		03/20/23 06:26	03/21/23 21:43	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:43	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0		ng/L		03/20/23 06:26	03/21/23 21:43	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*74*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:43*	*1*
13C6 PFDA	*67*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:43*	*1*
13C5 PFHxA	*68*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:43*	*1*
13C4 PFHpA	*69*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:43*	*1*
13C8 PFOA	*68*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:43*	*1*
13C9 PFNA	*67*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:43*	*1*
13C7 PFUnA	*66*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:43*	*1*
13C2 PFDoA	*70*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:43*	*1*
13C4 PFBA	*75*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:43*	*1*
13C5 PFPeA	*69*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:43*	*1*
13C3 PFBS	*92*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:43*	*1*
13C3 PFHxS	*95*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:43*	*1*
13C8 PFOS	*92*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:43*	*1*
13C2-4:2-FTS	*88*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:43*	*1*

Client Sample ID: HALAWA WELLS UNITS 1&2 P1 (331-206-TP065)
Date Collected: 02/21/23 09:48
Date Received: 02/23/23 10:30

Lab Sample ID: 380-38620-3
Matrix: Drinking Water

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

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2-6:2-FTS	*90*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:43*	*1*
13C2-8:2-FTS	*94*		*50 - 200*	*03/20/23 06:26*	*03/21/23 21:43*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:27	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:27	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:27	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:27	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:27	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:27	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:27	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:27	1
Perfluorohexanesulfonic acid (PFHxS)	**2.3**		2.0		ng/L		03/02/23 07:29	03/03/23 23:27	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:27	1
Perfluorononanoic acid (PFNA)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:27	1
Perfluorooctanesulfonic acid (PFOS)	**2.1**		2.0		ng/L		03/02/23 07:29	03/03/23 23:27	1
Perfluorooctanoic acid (PFOA)	**2.4**		2.0		ng/L		03/02/23 07:29	03/03/23 23:27	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:27	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:27	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:27	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:27	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0		ng/L		03/02/23 07:29	03/03/23 23:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*113*		*70 - 130*	*03/02/23 07:29*	*03/03/23 23:27*	*1*
13C2 PFDA	*116*		*70 - 130*	*03/02/23 07:29*	*03/03/23 23:27*	*1*
d5-NEtFOSAA	*112*		*70 - 130*	*03/02/23 07:29*	*03/03/23 23:27*	*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		02/24/23 00:00	03/05/23 02:08	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 02:08	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 02:08	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 02:08	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 02:08	1
Acenaphthene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 02:08	1
Acenaphthylene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 02:08	1
Anthracene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 02:08	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 02:08	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 02:08	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 02:08	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 02:08	1

Client Sample ID: HALAWA WELLS UNITS 1&2 P1 (331-206-TP065)

Lab Sample ID: 380-38620-3

Date Collected: 02/21/23 09:48
Date Received: 02/23/23 10:30

Matrix: Drinking Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 02:08	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 02:08	1
Biphenyl	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 02:08	1
Chrysene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 02:08	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 02:08	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 02:08	1
Dibenzothiophene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 02:08	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		02/24/23 00:00	03/05/23 02:08	1
Fluoranthene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 02:08	1
Fluorene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 02:08	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 02:08	1
Naphthalene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 02:08	1
Perylene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 02:08	1
Phenanthrene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 02:08	1
Pyrene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/05/23 02:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
(d10-Acenaphthene)	*83*		*27 - 133*	*02/24/23 00:00*	*03/05/23 02:08*	*1*
(d10-Phenanthrene)	*84*		*43 - 129*	*02/24/23 00:00*	*03/05/23 02:08*	*1*
(d12-Chrysene)	*82*		*52 - 144*	*02/24/23 00:00*	*03/05/23 02:08*	*1*
(d12-Perylene)	*83*		*36 - 161*	*02/24/23 00:00*	*03/05/23 02:08*	*1*
(d8-Naphthalene)	*76*		*25 - 125*	*02/24/23 00:00*	*03/05/23 02:08*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
GASOLINE	ND	U	0.020		mg/L			02/25/23 18:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
BROMOFLUOROBENZENE	*89*		*60 - 140*		*02/25/23 18:09*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DIESEL	ND	U	0.026		mg/L			03/06/23 18:41	1
MOTOR OIL	ND	U	0.052		mg/L			03/06/23 18:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
BROMOBENZENE	*84*		*60 - 130*		*03/06/23 18:41*	*1*
HEXACOSANE	*109*		*60 - 130*		*03/06/23 18:41*	*1*

Client Sample ID: TB:AIEA GULCH WELLS P2 (331-202-TP072)

Lab Sample ID: 380-38620-4

Date Collected: 02/21/23 10:40
Date Received: 02/23/23 10:30

Matrix: Water

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			02/25/23 19:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
BROMOFLUOROBENZENE	*89*		*60 - 140*		*02/25/23 19:24*	*1*

Client Sample ID: TB: AIEA WELLS PUMPS 1&2 P2 (260) (331-203-TP400)

Lab Sample ID: 380-38620-5

Date Collected: 02/21/23 10:17
Date Received: 02/23/23 10:30

Matrix: Water

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			02/25/23 20:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
BROMOFLUOROBENZENE	*68*		*60 - 140*		*02/25/23 20:01*	*1*

Client Sample ID: TB: HALAWA WELLS UNITS 1&2 P1 (331-206-TP065)

Lab Sample ID: 380-38620-6

Date Collected: 02/21/23 09:48
Date Received: 02/23/23 10:30

Matrix: Water

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			02/25/23 20:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
BROMOFLUOROBENZENE	*89*		*60 - 140*		*02/25/23 20:39*	*1*

Client Sample ID: FB HALAWA WELLS UNIT 1&2 P1

Lab Sample ID: 380-38620-9

Date Collected: 02/21/23 09:48
Date Received: 02/23/23 10:30

Matrix: Water

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0		ng/L		03/15/23 06:26	03/20/23 03:59	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0		ng/L		03/15/23 06:26	03/20/23 03:59	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0		ng/L		03/15/23 06:26	03/20/23 03:59	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0		ng/L		03/15/23 06:26	03/20/23 03:59	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0		ng/L		03/15/23 06:26	03/20/23 03:59	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0		ng/L		03/15/23 06:26	03/20/23 03:59	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0		ng/L		03/15/23 06:26	03/20/23 03:59	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0		ng/L		03/15/23 06:26	03/20/23 03:59	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0		ng/L		03/15/23 06:26	03/20/23 03:59	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0		ng/L		03/15/23 06:26	03/20/23 03:59	1
Perfluorononanoic acid (PFNA)	<2.0		2.0		ng/L		03/15/23 06:26	03/20/23 03:59	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0		ng/L		03/15/23 06:26	03/20/23 03:59	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0		ng/L		03/15/23 06:26	03/20/23 03:59	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0		ng/L		03/15/23 06:26	03/20/23 03:59	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0		ng/L		03/15/23 06:26	03/20/23 03:59	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0		ng/L		03/15/23 06:26	03/20/23 03:59	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0		ng/L		03/15/23 06:26	03/20/23 03:59	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0		ng/L		03/15/23 06:26	03/20/23 03:59	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0		ng/L		03/15/23 06:26	03/20/23 03:59	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		2.0		ng/L		03/15/23 06:26	03/20/23 03:59	1

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

Job ID: 380-38620-1

Client Sample ID: FB HALAWA WELLS UNIT 1&2 P1
Date Collected: 02/21/23 09:48
Date Received: 02/23/23 10:30

Lab Sample ID: 380-38620-9
Matrix: Water

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0		ng/L		03/15/23 06:26	03/20/23 03:59	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0		ng/L		03/15/23 06:26	03/20/23 03:59	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0		ng/L		03/15/23 06:26	03/20/23 03:59	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0		ng/L		03/15/23 06:26	03/20/23 03:59	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0		ng/L		03/15/23 06:26	03/20/23 03:59	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*93*		*50 - 200*	*03/15/23 06:26*	*03/20/23 03:59*	*1*
13C6 PFDA	*91*		*50 - 200*	*03/15/23 06:26*	*03/20/23 03:59*	*1*
13C5 PFHxA	*91*		*50 - 200*	*03/15/23 06:26*	*03/20/23 03:59*	*1*
13C4 PFHpA	*92*		*50 - 200*	*03/15/23 06:26*	*03/20/23 03:59*	*1*
13C8 PFOA	*92*		*50 - 200*	*03/15/23 06:26*	*03/20/23 03:59*	*1*
13C9 PFNA	*92*		*50 - 200*	*03/15/23 06:26*	*03/20/23 03:59*	*1*
13C7 PFUnA	*91*		*50 - 200*	*03/15/23 06:26*	*03/20/23 03:59*	*1*
13C2 PFDoA	*89*		*50 - 200*	*03/15/23 06:26*	*03/20/23 03:59*	*1*
13C4 PFBA	*92*		*50 - 200*	*03/15/23 06:26*	*03/20/23 03:59*	*1*
13C5 PFPeA	*91*		*50 - 200*	*03/15/23 06:26*	*03/20/23 03:59*	*1*
13C3 PFBS	*93*		*50 - 200*	*03/15/23 06:26*	*03/20/23 03:59*	*1*
13C3 PFHxS	*94*		*50 - 200*	*03/15/23 06:26*	*03/20/23 03:59*	*1*
13C8 PFOS	*91*		*50 - 200*	*03/15/23 06:26*	*03/20/23 03:59*	*1*
13C2-4:2-FTS	*88*		*50 - 200*	*03/15/23 06:26*	*03/20/23 03:59*	*1*
13C2-6:2-FTS	*88*		*50 - 200*	*03/15/23 06:26*	*03/20/23 03:59*	*1*
13C2-8:2-FTS	*88*		*50 - 200*	*03/15/23 06:26*	*03/20/23 03:59*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0		ng/L		03/07/23 06:31	03/08/23 00:31	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0		ng/L		03/07/23 06:31	03/08/23 00:31	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0		ng/L		03/07/23 06:31	03/08/23 00:31	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0		ng/L		03/07/23 06:31	03/08/23 00:31	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0		ng/L		03/07/23 06:31	03/08/23 00:31	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0		ng/L		03/07/23 06:31	03/08/23 00:31	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0		ng/L		03/07/23 06:31	03/08/23 00:31	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0		ng/L		03/07/23 06:31	03/08/23 00:31	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0		ng/L		03/07/23 06:31	03/08/23 00:31	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0		ng/L		03/07/23 06:31	03/08/23 00:31	1
Perfluorononanoic acid (PFNA)	<2.0		2.0		ng/L		03/07/23 06:31	03/08/23 00:31	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0		ng/L		03/07/23 06:31	03/08/23 00:31	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0		ng/L		03/07/23 06:31	03/08/23 00:31	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0		ng/L		03/07/23 06:31	03/08/23 00:31	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0		ng/L		03/07/23 06:31	03/08/23 00:31	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0		ng/L		03/07/23 06:31	03/08/23 00:31	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0		ng/L		03/07/23 06:31	03/08/23 00:31	1

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

Job ID: 380-38620-1

Client Sample ID: FB HALAWA WELLS UNIT 1&2 P1
Date Collected: 02/21/23 09:48
Date Received: 02/23/23 10:30

Lab Sample ID: 380-38620-9
Matrix: Water

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0		ng/L		03/07/23 06:31	03/08/23 00:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*98*		*70 - 130*	*03/07/23 06:31*	*03/08/23 00:31*	*1*
13C2 PFDA	*81*		*70 - 130*	*03/07/23 06:31*	*03/08/23 00:31*	*1*
d5-NEtFOSAA	*82*		*70 - 130*	*03/07/23 06:31*	*03/08/23 00:31*	*1*

Action Limit Summary

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

Job ID: 380-38620-1

Client Sample ID: AIEA WELLS PUMPS 1&2 P2 (260) (331-203-TP400)

Lab Sample ID: 380-38620-1

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 Limit	RL	Method	Prep Type
Alachlor	<0.099		ug/L	2	0.099	525.2	Total/NA
Atrazine	<0.099		ug/L	3	0.099	525.2	Total/NA
Benzo[a]pyrene	<0.020	F1	ug/L	0.2	0.020	525.2	Total/NA
Bis(2-ethylhexyl) phthalate	<0.59		ug/L	6	0.59	525.2	Total/NA
Di(2-ethylhexyl)adipate	<0.59		ug/L	400	0.59	525.2	Total/NA
Endrin	<0.0099		ug/L	2	0.0099	525.2	Total/NA
Heptachlor	<0.040		ug/L	0.4	0.040	525.2	Total/NA
Heptachlor epoxide (isomer B)	<0.020		ug/L	0.2	0.020	525.2	Total/NA
Hexachlorocyclopentadiene	<0.099		ug/L	50	0.099	525.2	Total/NA
Hexachlorobenzene	<0.099		ug/L	1	0.099	525.2	Total/NA
gamma-BHC (Lindane)	<0.020		ug/L	0.2	0.020	525.2	Total/NA
Methoxychlor	<0.099		ug/L	40	0.099	525.2	Total/NA
Simazine	<0.069		ug/L	4	0.069	525.2	Total/NA

Client Sample ID: AIEA GULCH WELLS PUMP 2 (331-202-TP072)

Lab Sample ID: 380-38620-2

Compliance Check

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

Analyte	Result	Qualifier	Unit	EPAMCL Limit	RL	Method	Prep Type
Alachlor	<0.098		ug/L	2	0.098	525.2	Total/NA
Atrazine	<0.098		ug/L	3	0.098	525.2	Total/NA
Benzo[a]pyrene	<0.020		ug/L	0.2	0.020	525.2	Total/NA
Bis(2-ethylhexyl) phthalate	<0.59	*+	ug/L	6	0.59	525.2	Total/NA
Di(2-ethylhexyl)adipate	<0.59	*+	ug/L	400	0.59	525.2	Total/NA
Endrin	<0.0098		ug/L	2	0.0098	525.2	Total/NA
Heptachlor	<0.039		ug/L	0.4	0.039	525.2	Total/NA
Heptachlor epoxide (isomer B)	<0.020		ug/L	0.2	0.020	525.2	Total/NA
Hexachlorocyclopentadiene	<0.098	*-	ug/L	50	0.098	525.2	Total/NA
Hexachlorobenzene	<0.098		ug/L	1	0.098	525.2	Total/NA
gamma-BHC (Lindane)	<0.020		ug/L	0.2	0.020	525.2	Total/NA
Methoxychlor	<0.098		ug/L	40	0.098	525.2	Total/NA
Simazine	<0.068		ug/L	4	0.068	525.2	Total/NA

Client Sample ID: HALAWA WELLS UNITS 1&2 P1 (331-206-TP065)

Lab Sample ID: 380-38620-3

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 Limit	RL	Method	Prep Type
Alachlor	<0.098		ug/L	2	0.098	525.2	Total/NA

Action Limit Summary

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

Job ID: 380-38620-1

Client Sample ID: HALAWA WELLS UNITS 1&2 P1 (331-206-TP065) (Continued)

Lab Sample ID: 380-38620-3

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 Limit	RL	Method	Prep Type
Atrazine	<0.098		ug/L	3	0.098	525.2	Total/NA
Benzo[a]pyrene	<0.020		ug/L	0.2	0.020	525.2	Total/NA
Bis(2-ethylhexyl) phthalate	<0.59		ug/L	6	0.59	525.2	Total/NA
Di(2-ethylhexyl)adipate	<0.59		ug/L	400	0.59	525.2	Total/NA
Endrin	<0.0098		ug/L	2	0.0098	525.2	Total/NA
Heptachlor	<0.039		ug/L	0.4	0.039	525.2	Total/NA
Heptachlor epoxide (isomer B)	<0.020		ug/L	0.2	0.020	525.2	Total/NA
Hexachlorocyclopentadiene	<0.098		ug/L	50	0.098	525.2	Total/NA
Hexachlorobenzene	<0.098		ug/L	1	0.098	525.2	Total/NA
gamma-BHC (Lindane)	<0.020		ug/L	0.2	0.020	525.2	Total/NA
Methoxychlor	<0.098		ug/L	40	0.098	525.2	Total/NA
Simazine	<0.068		ug/L	4	0.068	525.2	Total/NA

Surrogate Summary

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

Job ID: 380-38620-1

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

Matrix: Drinking Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	PFHxA (70-130)	PFDA (70-130)	d5NEFOS (70-130)
380-38620-1	AIEA WELLS PUMPS 1&2 P2 (2	115	116	112
380-38620-2	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	112	115	106
380-38620-3	HALAWA WELLS UNITS 1&2 P1 (331-206-TP065)	113	116	112

Surrogate Legend

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

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

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	PFHxA (70-130)	PFDA (70-130)	d5NEFOS (70-130)
380-38620-9	FB HALAWA WELLS UNIT 1&2	98	81	82
380-38746-C-1-A LMS	Matrix Spike	101	96	99
380-39123-B-1-A DU	Duplicate	99	93	93
810-54114-B-1-A MS	Matrix Spike	119	121	106
810-53743-AW-1-A DU	Duplicate	118	114	113
LCS 810-49974/3-A	Lab Control Sample	105	115	106
LLCS 810-49974/1-A	Lab Control Sample	115	122	120
LLCS 810-50546/2-A	Lab Control Sample	95	98	97
MBL 810-49974/2-A	Method Blank	110	118	110
MBL 810-50546/1-A	Method Blank	105	91	87

Surrogate Legend

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

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

Matrix: BlankMatrix — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)				
Lab Sample ID	Client Sample ID	Acenapht (27-133)	Phenanth (43-129)	CRY (52-144)	NPT (25-125)	PRY (36-161)
104298-B1	Method Blank	85	86	85	78	83
104298-BS1	Lab Control Sample	88	89	83	82	89
104298-BS2	Lab Control Sample Dup	84	86	81	78	84

Surrogate Legend

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

Surrogate Summary

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

Job ID: 380-38620-1

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

Matrix: Drinking Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)							
		Acenapht	Phenanth	CRY	NPT	PRY			
Lab Sample ID	Client Sample ID	(27-133)	(43-129)	(52-144)	(25-125)	(36-161)			
380-38620-1	AIEA WELLS PUMPS 1&2 P2 (2	79	82	79	72	74			
380-38620-2	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	82	84	82	77	80			
380-38620-3	HALAWA WELLS UNITS 1&2 P1 (331-206-TP065)	83	84	82	76	83			

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**

		Percent Surrogate Recovery (Acceptance Limits)							
		BFB							
Lab Sample ID	Client Sample ID	(60-140)							
380-38620-1	AIEA WELLS PUMPS 1&2 P2 (2	91							
380-38620-2	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	95							
380-38620-3	HALAWA WELLS UNITS 1&2 P1 (331-206-TP065)	89							

Surrogate Legend

BFB = BROMOFLUOROBENZENE

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

Matrix: WATER **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)							
		BFB							
Lab Sample ID	Client Sample ID	(60-140)							
23B265-01M	Matrix Spike	116							
23B265-01S	Matrix Spike Duplicate	111							

Surrogate Legend

BFB = BROMOFLUOROBENZENE

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

Matrix: WATER **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)							
		BFB							
Lab Sample ID	Client Sample ID								
23VGH7B08B	Method Blank								

Surrogate Legend

BFB = BROMOFLUOROBENZENE

Surrogate Summary

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

Job ID: 380-38620-1

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

Matrix: WATER

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)
		BFB
Lab Sample ID	Client Sample ID	(70-130)
23VGH7B08C	LCD	111
23VGH7B08L	Lab Control Sample	109

Surrogate Legend

BFB = BROMOFLUOROBENZENE

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

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)
		BFB
Lab Sample ID	Client Sample ID	(60-140)
380-38620-4	TB:AIEA GULCH WELLS P2 (33	89
380-38620-5	TB: AIEA WELLS PUMPS 1&2 P2 (260) (331-203-TP400)	68
380-38620-6	TB: HALAWA WELLS UNITS 1&2 P1 (331-206-TP065)	89

Surrogate Legend

BFB = BROMOFLUOROBENZENE

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

Matrix: Drinking Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
		BB	XACOSAI
Lab Sample ID	Client Sample ID	(60-130)	(60-130)
380-38620-1	AIEA WELLS PUMPS 1&2 P2 (2	91	115
380-38620-2	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	86	107
380-38620-3	HALAWA WELLS UNITS 1&2 P1 (331-206-TP065)	84	109

Surrogate Legend

BB = BROMOBENZENE

HEXACOSANE = HEXACOSANE

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

Matrix: WATER

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
		BB	XACOSAI
Lab Sample ID	Client Sample ID		
23DSC005WB	Method Blank		

Surrogate Legend

BB = BROMOBENZENE

HEXACOSANE = HEXACOSANE

Surrogate Summary

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

Job ID: 380-38620-1

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

Matrix: WATER

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)									
		BB	XACOSA								
Lab Sample ID	Client Sample ID	(60-130)	(60-130)								
23DSC005WC	LCD	97	109								
23DSC005WL	Lab Control Sample	98	110								

Surrogate Legend

BB = BROMOBENZENE

HEXACOSANE = HEXACOSANE

Isotope Dilution Summary

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

Job ID: 380-38620-1

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)
380-38620-1	AIEA WELLS PUMPS 1&2 P2 (2	63	72	73	74	73	72	71	73
380-38620-2	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	65	71	72	72	70	69	73	78
380-38620-3	HALAWA WELLS UNITS 1&2 P1 (331-206-TP065)	74	67	68	69	68	67	66	70

		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)
380-38620-1	AIEA WELLS PUMPS 1&2 P2 (2	77	71	95	98	94	92	92	97
380-38620-2	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	77	72	100	100	97	94	98	103
380-38620-3	HALAWA WELLS UNITS 1&2 P1 (331-206-TP065)	75	69	92	95	92	88	90	94

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)
380-38463-A-1-A DU	Duplicate	90	59	74	74	69	64	59	64
380-38570-D-3-A DU	Duplicate	83	70	84	83	79	76	68	69
380-38620-9	FB HALAWA WELLS UNIT 1&2 P1	93	91	91	92	92	92	91	89
810-54079-A-1-A MS	Matrix Spike	86	82	78	82	84	85	80	80
810-54543-C-2-A LMS	Matrix Spike	94	75	82	82	81	78	72	71
LCS 810-52176/3-A	Lab Control Sample	98	97	98	99	100	98	94	94
LLCS 810-51657/2-A	Lab Control Sample	91	94	97	98	97	98	93	93
LLCS 810-52176/2-A	Lab Control Sample	82	93	95	95	95	94	88	87
MBL 810-51657/1-A	Method Blank	88	96	101	102	102	101	95	93
MBL 810-52176/1-A	Method Blank	87	92	95	94	94	93	91	91

Isotope Dilution Summary

Client: City & County of Honolulu
Job ID: 380-38620-1
Project/Site: RED-HILL

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

Matrix: Water **Prep Type: Total/NA**

		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)
380-38463-A-1-A DU	Duplicate	81	76	99	102	93	88	95	97
380-38570-D-3-A DU	Duplicate	93	91	103	103	97	98	99	98
380-38620-9	FB HALAWA WELLS UNIT 1&2 P1	92	91	93	94	91	88	88	88
810-54079-A-1-A MS	Matrix Spike	77	77	96	95	89	94	96	90
810-54543-C-2-A LMS	Matrix Spike	91	92	91	92	90	93	93	98
LCS 810-52176/3-A	Lab Control Sample	100	98	99	98	98	102	103	101
LLCS 810-51657/2-A	Lab Control Sample	98	99	98	98	95	94	93	95
LLCS 810-52176/2-A	Lab Control Sample	95	94	95	95	92	96	95	94
MBL 810-51657/1-A	Method Blank	103	103	106	104	98	100	103	100
MBL 810-52176/1-A	Method Blank	95	92	97	93	90	96	94	96

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

Lab Sample ID: MBL 810-51657/1-A
Matrix: Water
Analysis Batch: 52107

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 51657

Analyte	MBL Result	MBL Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<0.51		2.0		ng/L		03/15/23 06:26	03/19/23 19:55	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<0.45		2.0		ng/L		03/15/23 06:26	03/19/23 19:55	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.40		2.0		ng/L		03/15/23 06:26	03/19/23 19:55	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<0.53		2.0		ng/L		03/15/23 06:26	03/19/23 19:55	1
Perfluorobutanesulfonic acid (PFBS)	<0.42		2.0		ng/L		03/15/23 06:26	03/19/23 19:55	1
Perfluorodecanoic acid (PFDA)	<0.36		2.0		ng/L		03/15/23 06:26	03/19/23 19:55	1
Perfluorododecanoic acid (PFDoA)	<0.35		2.0		ng/L		03/15/23 06:26	03/19/23 19:55	1
Perfluoroheptanoic acid (PFHpA)	<0.40		2.0		ng/L		03/15/23 06:26	03/19/23 19:55	1
Perfluorohexanesulfonic acid (PFHxS)	<0.39		2.0		ng/L		03/15/23 06:26	03/19/23 19:55	1
Perfluorohexanoic acid (PFHxA)	<0.42		2.0		ng/L		03/15/23 06:26	03/19/23 19:55	1
Perfluorononanoic acid (PFNA)	<0.38		2.0		ng/L		03/15/23 06:26	03/19/23 19:55	1
Perfluorooctanesulfonic acid (PFOS)	<0.39		2.0		ng/L		03/15/23 06:26	03/19/23 19:55	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0		ng/L		03/15/23 06:26	03/19/23 19:55	1
Perfluoroundecanoic acid (PFUnA)	<0.38		2.0		ng/L		03/15/23 06:26	03/19/23 19:55	1
Perfluorobutanoic acid (PFBA)	<0.52		2.0		ng/L		03/15/23 06:26	03/19/23 19:55	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<0.57		2.0		ng/L		03/15/23 06:26	03/19/23 19:55	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<0.56		2.0		ng/L		03/15/23 06:26	03/19/23 19:55	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<0.68		2.0		ng/L		03/15/23 06:26	03/19/23 19:55	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.93		2.0		ng/L		03/15/23 06:26	03/19/23 19:55	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.45		2.0		ng/L		03/15/23 06:26	03/19/23 19:55	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.32		2.0		ng/L		03/15/23 06:26	03/19/23 19:55	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.35		2.0		ng/L		03/15/23 06:26	03/19/23 19:55	1
Perfluoropentanoic acid (PFPeA)	<0.38		2.0		ng/L		03/15/23 06:26	03/19/23 19:55	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.44		2.0		ng/L		03/15/23 06:26	03/19/23 19:55	1
Perfluoropentanesulfonic acid (PFPeS)	<0.37		2.0		ng/L		03/15/23 06:26	03/19/23 19:55	1

Isotope Dilution	*MBL %Recovery*	*MBL Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C3 HFPO-DA	*88*		*50 - 200*	*03/15/23 06:26*	*03/19/23 19:55*	*1*
13C6 PFDA	*96*		*50 - 200*	*03/15/23 06:26*	*03/19/23 19:55*	*1*
13C5 PFHxA	*101*		*50 - 200*	*03/15/23 06:26*	*03/19/23 19:55*	*1*
13C4 PFHpA	*102*		*50 - 200*	*03/15/23 06:26*	*03/19/23 19:55*	*1*
13C8 PFOA	*102*		*50 - 200*	*03/15/23 06:26*	*03/19/23 19:55*	*1*
13C9 PFNA	*101*		*50 - 200*	*03/15/23 06:26*	*03/19/23 19:55*	*1*
13C7 PFUnA	*95*		*50 - 200*	*03/15/23 06:26*	*03/19/23 19:55*	*1*
13C2 PFDoA	*93*		*50 - 200*	*03/15/23 06:26*	*03/19/23 19:55*	*1*
13C4 PFBA	*103*		*50 - 200*	*03/15/23 06:26*	*03/19/23 19:55*	*1*
13C5 PFPeA	*103*		*50 - 200*	*03/15/23 06:26*	*03/19/23 19:55*	*1*
13C3 PFBS	*106*		*50 - 200*	*03/15/23 06:26*	*03/19/23 19:55*	*1*
13C3 PFHxS	*104*		*50 - 200*	*03/15/23 06:26*	*03/19/23 19:55*	*1*

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

Lab Sample ID: MBL 810-51657/1-A
Matrix: Water
Analysis Batch: 52107

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 51657

Isotope Dilution	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOS	98		50 - 200	03/15/23 06:26	03/19/23 19:55	1
13C2-4:2-FTS	100		50 - 200	03/15/23 06:26	03/19/23 19:55	1
13C2-6:2-FTS	103		50 - 200	03/15/23 06:26	03/19/23 19:55	1
13C2-8:2-FTS	100		50 - 200	03/15/23 06:26	03/19/23 19:55	1

Lab Sample ID: LLCS 810-51657/2-A
Matrix: Water
Analysis Batch: 52107

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 51657

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	1.89	1.54	J	ng/L		82	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	1.87	1.57	J	ng/L		84	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.89	1.64	J	ng/L		87	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	1.66	J	ng/L		83	50 - 150
Perfluorobutanesulfonic acid (PFBS)	1.78	1.52	J	ng/L		86	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	1.69	J	ng/L		85	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	1.73	J	ng/L		86	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	1.74	J	ng/L		87	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	1.83	1.54	J	ng/L		84	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	1.76	J	ng/L		88	50 - 150
Perfluorononanoic acid (PFNA)	2.00	1.70	J	ng/L		85	50 - 150
Perfluorooctanesulfonic acid (PFOS)	1.86	1.61	J	ng/L		87	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	1.80	J	ng/L		90	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	1.71	J	ng/L		85	50 - 150
Perfluorobutanoic acid (PFBA)	2.00	1.81	J	ng/L		90	50 - 150
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	1.92	1.88	J	ng/L		98	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	1.88	1.71	J	ng/L		91	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	1.90	1.91	J	ng/L		100	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.00	1.68	J	ng/L		84	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	1.78	1.48	J	ng/L		83	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.00	1.77	J	ng/L		88	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.00	1.67	J	ng/L		84	50 - 150
Perfluoropentanoic acid (PFPeA)	2.00	1.80	J	ng/L		90	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	1.91	1.65	J	ng/L		86	50 - 150

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

Lab Sample ID: LLCS 810-51657/2-A
Matrix: Water
Analysis Batch: 52107

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 51657

Analyte			Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits		
Perfluoropentanesulfonic acid (PFPeS)			1.88	1.63	J	ng/L		87	50 - 150		

Isotope Dilution	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
13C3 HFPO-DA	*91*		*50 - 200*
13C6 PFDA	*94*		*50 - 200*
13C5 PFHxA	*97*		*50 - 200*
13C4 PFHpA	*98*		*50 - 200*
13C8 PFOA	*97*		*50 - 200*
13C9 PFNA	*98*		*50 - 200*
13C7 PFUnA	*93*		*50 - 200*
13C2 PFDoA	*93*		*50 - 200*
13C4 PFBA	*98*		*50 - 200*
13C5 PFPeA	*99*		*50 - 200*
13C3 PFBS	*98*		*50 - 200*
13C3 PFHxS	*98*		*50 - 200*
13C8 PFOS	*95*		*50 - 200*
13C2-4:2-FTS	*94*		*50 - 200*
13C2-6:2-FTS	*93*		*50 - 200*
13C2-8:2-FTS	*95*		*50 - 200*

Lab Sample ID: 810-54079-A-1-A MS
Matrix: Water
Analysis Batch: 52107

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 51657

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		175	162		ng/L		93	70 - 130		
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		173	164		ng/L		95	70 - 130		
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		175	163		ng/L		93	70 - 130		
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		185	165		ng/L		89	70 - 130		
Perfluorobutanesulfonic acid (PFBS)	<2.0		164	162		ng/L		98	70 - 130		
Perfluorodecanoic acid (PFDA)	<2.0		185	181		ng/L		98	70 - 130		
Perfluorododecanoic acid (PFDoA)	<2.0		185	186		ng/L		100	70 - 130		
Perfluoroheptanoic acid (PFHpA)	<2.0		185	180		ng/L		97	70 - 130		
Perfluorohexanesulfonic acid (PFHxS)	<2.0		169	162		ng/L		96	70 - 130		
Perfluorohexanoic acid (PFHxA)	<2.0		185	183		ng/L		99	70 - 130		
Perfluorononanoic acid (PFNA)	<2.0		185	181		ng/L		98	70 - 130		
Perfluorooctanesulfonic acid (PFOS)	<2.0		172	169		ng/L		98	70 - 130		
Perfluorooctanoic acid (PFOA)	<2.0		185	182		ng/L		98	70 - 130		
Perfluoroundecanoic acid (PFUnA)	<2.0		185	181		ng/L		98	70 - 130		
Perfluorobutanoic acid (PFBA)	<2.0		185	180		ng/L		97	70 - 130		

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

Lab Sample ID: 810-54079-A-1-A MS
Matrix: Water
Analysis Batch: 52107

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 51657

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		178	181		ng/L		102	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		174	177		ng/L		102	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		176	182		ng/L		104	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		185	184		ng/L		99	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		165	158		ng/L		96	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		185	177		ng/L		96	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		185	177		ng/L		96	70 - 130
Perfluoropentanoic acid (PFPeA)	<2.0		185	182		ng/L		98	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		176	180		ng/L		102	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	<2.0		174	170		ng/L		98	70 - 130

Isotope Dilution	*MS %Recovery*	*MS Qualifier*	*Limits*
13C3 HFPO-DA	*86*		*50 - 200*
13C6 PFDA	*82*		*50 - 200*
13C5 PFHxA	*78*		*50 - 200*
13C4 PFHpA	*82*		*50 - 200*
13C8 PFOA	*84*		*50 - 200*
13C9 PFNA	*85*		*50 - 200*
13C7 PFUnA	*80*		*50 - 200*
13C2 PFDoA	*80*		*50 - 200*
13C4 PFBA	*77*		*50 - 200*
13C5 PFPeA	*77*		*50 - 200*
13C3 PFBS	*96*		*50 - 200*
13C3 PFHxS	*95*		*50 - 200*
13C8 PFOS	*89*		*50 - 200*
13C2-4:2-FTS	*94*		*50 - 200*
13C2-6:2-FTS	*96*		*50 - 200*
13C2-8:2-FTS	*90*		*50 - 200*

Lab Sample ID: 380-38570-D-3-A DU
Matrix: Water
Analysis Batch: 52107

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 51657

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0			<2.0		ng/L				NC	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0			<2.0		ng/L				NC	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0			<2.0		ng/L				NC	30

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

Lab Sample ID: 380-38570-D-3-A DU
Matrix: Water
Analysis Batch: 52107

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 51657

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0			<2.0		ng/L				NC	30
Perfluorobutanesulfonic acid (PFBS)	<2.0			<2.0		ng/L				NC	30
Perfluorodecanoic acid (PFDA)	<2.0			<2.0		ng/L				NC	30
Perfluorododecanoic acid (PFDoA)	<2.0			<2.0		ng/L				NC	30
Perfluoroheptanoic acid (PFHpA)	<2.0			<2.0		ng/L				NC	30
Perfluorohexanesulfonic acid (PFHxS)	<2.0			<2.0		ng/L				NC	30
Perfluorohexanoic acid (PFHxA)	<2.0			<2.0		ng/L				NC	30
Perfluorononanoic acid (PFNA)	<2.0			<2.0		ng/L				NC	30
Perfluorooctanesulfonic acid (PFOS)	<2.0			<2.0		ng/L				NC	30
Perfluorooctanoic acid (PFOA)	<2.0			<2.0		ng/L				NC	30
Perfluoroundecanoic acid (PFUnA)	<2.0			<2.0		ng/L				NC	30
Perfluorobutanoic acid (PFBA)	2.5			2.57		ng/L				2	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0			<2.0		ng/L				NC	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0			<2.0		ng/L				NC	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0			<2.0		ng/L				NC	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0			<2.0		ng/L				NC	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0			<2.0		ng/L				NC	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0			<2.0		ng/L				NC	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0			<2.0		ng/L				NC	30
Perfluoropentanoic acid (PFPeA)	<2.0			<2.0		ng/L				NC	30
Perfluoroheptanesulfonic acid (PFHpS)	<2.0			<2.0		ng/L				NC	30
Perfluoropentanesulfonic acid (PFPeS)	<2.0			<2.0		ng/L				NC	30

Isotope Dilution	*DU %Recovery*	*DU Qualifier*	*Limits*
13C3 HFPO-DA	*83*		*50 - 200*
13C6 PFDA	*70*		*50 - 200*
13C5 PFHxA	*84*		*50 - 200*
13C4 PFHpA	*83*		*50 - 200*
13C8 PFOA	*79*		*50 - 200*
13C9 PFNA	*76*		*50 - 200*
13C7 PFUnA	*68*		*50 - 200*
13C2 PFDoA	*69*		*50 - 200*
13C4 PFBA	*93*		*50 - 200*
13C5 PFPeA	*91*		*50 - 200*
13C3 PFBS	*103*		*50 - 200*
13C3 PFHxS	*103*		*50 - 200*
13C8 PFOS	*97*		*50 - 200*

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

Lab Sample ID: 380-38570-D-3-A DU
Matrix: Water
Analysis Batch: 52107

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 51657

Isotope Dilution	DU %Recovery	DU Qualifier	Limits
13C2-4:2-FTS	98		50 - 200
13C2-6:2-FTS	99		50 - 200
13C2-8:2-FTS	98		50 - 200

Lab Sample ID: MBL 810-52176/1-A
Matrix: Water
Analysis Batch: 52376

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 52176

Analyte	MBL Result	MBL Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<0.51		2.0		ng/L		03/20/23 06:26	03/21/23 17:00	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<0.45		2.0		ng/L		03/20/23 06:26	03/21/23 17:00	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.40		2.0		ng/L		03/20/23 06:26	03/21/23 17:00	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<0.53		2.0		ng/L		03/20/23 06:26	03/21/23 17:00	1
Perfluorobutanesulfonic acid (PFBS)	<0.42		2.0		ng/L		03/20/23 06:26	03/21/23 17:00	1
Perfluorodecanoic acid (PFDA)	<0.36		2.0		ng/L		03/20/23 06:26	03/21/23 17:00	1
Perfluorododecanoic acid (PFDoA)	<0.35		2.0		ng/L		03/20/23 06:26	03/21/23 17:00	1
Perfluoroheptanoic acid (PFHpA)	<0.40		2.0		ng/L		03/20/23 06:26	03/21/23 17:00	1
Perfluorohexanesulfonic acid (PFHxS)	<0.39		2.0		ng/L		03/20/23 06:26	03/21/23 17:00	1
Perfluorohexanoic acid (PFHxA)	<0.42		2.0		ng/L		03/20/23 06:26	03/21/23 17:00	1
Perfluorononanoic acid (PFNA)	<0.38		2.0		ng/L		03/20/23 06:26	03/21/23 17:00	1
Perfluorooctanesulfonic acid (PFOS)	<0.39		2.0		ng/L		03/20/23 06:26	03/21/23 17:00	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0		ng/L		03/20/23 06:26	03/21/23 17:00	1
Perfluoroundecanoic acid (PFUnA)	<0.38		2.0		ng/L		03/20/23 06:26	03/21/23 17:00	1
Perfluorobutanoic acid (PFBA)	<0.52		2.0		ng/L		03/20/23 06:26	03/21/23 17:00	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<0.57		2.0		ng/L		03/20/23 06:26	03/21/23 17:00	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<0.56		2.0		ng/L		03/20/23 06:26	03/21/23 17:00	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<0.68		2.0		ng/L		03/20/23 06:26	03/21/23 17:00	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.93		2.0		ng/L		03/20/23 06:26	03/21/23 17:00	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.45		2.0		ng/L		03/20/23 06:26	03/21/23 17:00	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.32		2.0		ng/L		03/20/23 06:26	03/21/23 17:00	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.35		2.0		ng/L		03/20/23 06:26	03/21/23 17:00	1
Perfluoropentanoic acid (PFPeA)	<0.38		2.0		ng/L		03/20/23 06:26	03/21/23 17:00	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.44		2.0		ng/L		03/20/23 06:26	03/21/23 17:00	1
Perfluoropentanesulfonic acid (PFPeS)	<0.37		2.0		ng/L		03/20/23 06:26	03/21/23 17:00	1

Isotope Dilution	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	87		50 - 200	03/20/23 06:26	03/21/23 17:00	1
13C6 PFDA	92		50 - 200	03/20/23 06:26	03/21/23 17:00	1
13C5 PFHxA	95		50 - 200	03/20/23 06:26	03/21/23 17:00	1

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

Lab Sample ID: MBL 810-52176/1-A
Matrix: Water
Analysis Batch: 52376

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 52176

Isotope Dilution	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFHpA	94		50 - 200	03/20/23 06:26	03/21/23 17:00	1
13C8 PFOA	94		50 - 200	03/20/23 06:26	03/21/23 17:00	1
13C9 PFNA	93		50 - 200	03/20/23 06:26	03/21/23 17:00	1
13C7 PFUnA	91		50 - 200	03/20/23 06:26	03/21/23 17:00	1
13C2 PFDoA	91		50 - 200	03/20/23 06:26	03/21/23 17:00	1
13C4 PFBA	95		50 - 200	03/20/23 06:26	03/21/23 17:00	1
13C5 PFPeA	92		50 - 200	03/20/23 06:26	03/21/23 17:00	1
13C3 PFBS	97		50 - 200	03/20/23 06:26	03/21/23 17:00	1
13C3 PFHxS	93		50 - 200	03/20/23 06:26	03/21/23 17:00	1
13C8 PFOS	90		50 - 200	03/20/23 06:26	03/21/23 17:00	1
13C2-4:2-FTS	96		50 - 200	03/20/23 06:26	03/21/23 17:00	1
13C2-6:2-FTS	94		50 - 200	03/20/23 06:26	03/21/23 17:00	1
13C2-8:2-FTS	96		50 - 200	03/20/23 06:26	03/21/23 17:00	1

Lab Sample ID: LCS 810-52176/3-A
Matrix: Water
Analysis Batch: 52376

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 52176

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	189	179		ng/L		95	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	187	179		ng/L		96	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	189	188		ng/L		99	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	200	213		ng/L		107	70 - 130
Perfluorobutanesulfonic acid (PFBS)	178	177		ng/L		100	70 - 130
Perfluorodecanoic acid (PFDA)	200	200		ng/L		100	70 - 130
Perfluorododecanoic acid (PFDoA)	200	201		ng/L		100	70 - 130
Perfluoroheptanoic acid (PFHpA)	200	198		ng/L		99	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	183	181		ng/L		99	70 - 130
Perfluorohexanoic acid (PFHxA)	200	201		ng/L		100	70 - 130
Perfluorononanoic acid (PFNA)	200	198		ng/L		99	70 - 130
Perfluorooctanesulfonic acid (PFOS)	186	185		ng/L		100	70 - 130
Perfluorooctanoic acid (PFOA)	200	198		ng/L		99	70 - 130
Perfluoroundecanoic acid (PFUnA)	200	198		ng/L		99	70 - 130
Perfluorobutanoic acid (PFBA)	200	200		ng/L		100	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	192	199		ng/L		104	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	188	195		ng/L		104	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	190	200		ng/L		105	70 - 130

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

Lab Sample ID: LCS 810-52176/3-A
Matrix: Water
Analysis Batch: 52376

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 52176

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	200	213		ng/L		107	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	178	182		ng/L		102	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	200	198		ng/L		99	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	200	195		ng/L		98	70 - 130
Perfluoropentanoic acid (PFPeA)	200	198		ng/L		99	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	191	191		ng/L		100	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	188	187		ng/L		99	70 - 130

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C3 HFPO-DA	*98*		*50 - 200*
13C6 PFDA	*97*		*50 - 200*
13C5 PFHxA	*98*		*50 - 200*
13C4 PFHpA	*99*		*50 - 200*
13C8 PFOA	*100*		*50 - 200*
13C9 PFNA	*98*		*50 - 200*
13C7 PFUnA	*94*		*50 - 200*
13C2 PFDoA	*94*		*50 - 200*
13C4 PFBA	*100*		*50 - 200*
13C5 PFPeA	*98*		*50 - 200*
13C3 PFBS	*99*		*50 - 200*
13C3 PFHxS	*98*		*50 - 200*
13C8 PFOS	*98*		*50 - 200*
13C2-4:2-FTS	*102*		*50 - 200*
13C2-6:2-FTS	*103*		*50 - 200*
13C2-8:2-FTS	*101*		*50 - 200*

Lab Sample ID: LLCS 810-52176/2-A
Matrix: Water
Analysis Batch: 52376

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 52176

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	1.89	1.67	J	ng/L		88	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	1.87	1.72	J	ng/L		92	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.89	1.83	J	ng/L		97	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	1.87	J	ng/L		93	50 - 150
Perfluorobutanesulfonic acid (PFBS)	1.78	1.71	J	ng/L		96	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	1.93	J	ng/L		97	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	1.97	J	ng/L		99	50 - 150

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

Lab Sample ID: LLCS 810-52176/2-A
Matrix: Water
Analysis Batch: 52376

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 52176

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroheptanoic acid (PFHpA)	2.00	1.94	J	ng/L		97	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	1.83	1.76	J	ng/L		97	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	1.93	J	ng/L		97	50 - 150
Perfluorononanoic acid (PFNA)	2.00	1.94	J	ng/L		97	50 - 150
Perfluorooctanesulfonic acid (PFOS)	1.86	1.81	J	ng/L		98	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	2.02		ng/L		101	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	1.88	J	ng/L		94	50 - 150
Perfluorobutanoic acid (PFBA)	2.00	2.10		ng/L		105	50 - 150
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	1.92	2.08		ng/L		108	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	1.88	1.98	J	ng/L		105	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	1.90	2.03		ng/L		107	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.00	2.04		ng/L		102	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	1.78	1.74	J	ng/L		98	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.00	1.92	J	ng/L		96	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.00	1.89	J	ng/L		94	50 - 150
Perfluoropentanoic acid (PFPeA)	2.00	2.03		ng/L		102	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	1.91	1.87	J	ng/L		98	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	1.88	1.80	J	ng/L		96	50 - 150

Isotope Dilution	*LLCS %Recovery*	*LLCS Qualifier*	*Limits*
13C3 HFPO-DA	*82*		*50 - 200*
13C6 PFDA	*93*		*50 - 200*
13C5 PFHxA	*95*		*50 - 200*
13C4 PFHpA	*95*		*50 - 200*
13C8 PFOA	*95*		*50 - 200*
13C9 PFNA	*94*		*50 - 200*
13C7 PFUnA	*88*		*50 - 200*
13C2 PFDoA	*87*		*50 - 200*
13C4 PFBA	*95*		*50 - 200*
13C5 PFPeA	*94*		*50 - 200*
13C3 PFBS	*95*		*50 - 200*
13C3 PFHxS	*95*		*50 - 200*
13C8 PFOS	*92*		*50 - 200*
13C2-4:2-FTS	*96*		*50 - 200*
13C2-6:2-FTS	*95*		*50 - 200*
13C2-8:2-FTS	*94*		*50 - 200*

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

Lab Sample ID: 810-54543-C-2-A LMS
Matrix: Water
Analysis Batch: 52376

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 52176

Analyte	Sample Result	Sample Qualifier	Spike Added	LMS Result	LMS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		1.78	1.54	J	ng/L		86	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		1.76	1.63	J	ng/L		93	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		1.78	1.66	J	ng/L		93	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		1.88	1.82	J	ng/L		96	50 - 150
Perfluorobutanesulfonic acid (PFBS)	<2.0		1.67	2.10		ng/L		90	50 - 150
Perfluorodecanoic acid (PFDA)	<2.0		1.88	1.82	J	ng/L		96	50 - 150
Perfluorododecanoic acid (PFDoA)	<2.0		1.88	1.79	J	ng/L		95	50 - 150
Perfluoroheptanoic acid (PFHpA)	<2.0		1.88	2.01		ng/L		106	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	<2.0		1.72	1.84	J	ng/L		107	50 - 150
Perfluorohexanoic acid (PFHxA)	<2.0		1.88	2.12		ng/L		90	50 - 150
Perfluorononanoic acid (PFNA)	<2.0		1.88	1.90	J	ng/L		101	50 - 150
Perfluorooctanesulfonic acid (PFOS)	<2.0		1.75	1.83	J	ng/L		104	50 - 150
Perfluorooctanoic acid (PFOA)	<2.0		1.88	2.16		ng/L		88	50 - 150
Perfluoroundecanoic acid (PFUnA)	<2.0		1.88	1.79	J	ng/L		95	50 - 150
Perfluorobutanoic acid (PFBA)	<2.0		1.88	3.32		ng/L		94	50 - 150
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		1.81	1.88	J	ng/L		104	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		1.77	1.82	J	ng/L		103	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		1.79	1.83	J	ng/L		102	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		1.88	1.94	J	ng/L		103	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		1.68	1.48	J	ng/L		88	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		1.88	1.87	J	ng/L		99	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		1.88	1.68	J	ng/L		89	50 - 150
Perfluoropentanoic acid (PFPeA)	<2.0		1.88	2.57		ng/L		85	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		1.80	1.68	J	ng/L		93	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	<2.0		1.77	1.63	J	ng/L		92	50 - 150

Isotope Dilution	*LMS %Recovery*	*LMS Qualifier*	*Limits*
13C3 HFPO-DA	*94*		*50 - 200*
13C6 PFDA	*75*		*50 - 200*
13C5 PFHxA	*82*		*50 - 200*
13C4 PFHpA	*82*		*50 - 200*
13C8 PFOA	*81*		*50 - 200*
13C9 PFNA	*78*		*50 - 200*

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

Lab Sample ID: 810-54543-C-2-A LMS
Matrix: Water
Analysis Batch: 52376

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 52176

Isotope Dilution	LMS %Recovery	LMS Qualifier	Limits
13C7 PFUnA	72		50 - 200
13C2 PFDoA	71		50 - 200
13C4 PFBA	91		50 - 200
13C5 PFPeA	92		50 - 200
13C3 PFBS	91		50 - 200
13C3 PFHxS	92		50 - 200
13C8 PFOS	90		50 - 200
13C2-4:2-FTS	93		50 - 200
13C2-6:2-FTS	93		50 - 200
13C2-8:2-FTS	98		50 - 200

Lab Sample ID: 380-38463-A-1-A DU
Matrix: Water
Analysis Batch: 52376

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 52176

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0			<2.0		ng/L				NC	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0			<2.0		ng/L				NC	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0			<2.0		ng/L				NC	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0			<2.0		ng/L				NC	30
Perfluorobutanesulfonic acid (PFBS)	<2.0			<2.0		ng/L				NC	30
Perfluorodecanoic acid (PFDA)	<2.0			<2.0		ng/L				NC	30
Perfluorododecanoic acid (PFDoA)	<2.0			<2.0		ng/L				NC	30
Perfluoroheptanoic acid (PFHpA)	<2.0			<2.0		ng/L				NC	30
Perfluorohexanesulfonic acid (PFHxS)	2.1			<2.0		ng/L				NC	30
Perfluorohexanoic acid (PFHxA)	<2.0			<2.0		ng/L				NC	30
Perfluorononanoic acid (PFNA)	<2.0			<2.0		ng/L				NC	30
Perfluorooctanesulfonic acid (PFOS)	<2.0			<2.0		ng/L				NC	30
Perfluorooctanoic acid (PFOA)	<2.0			<2.0		ng/L				NC	30
Perfluoroundecanoic acid (PFUnA)	<2.0			<2.0		ng/L				NC	30
Perfluorobutanoic acid (PFBA)	<2.0			<2.0		ng/L				NC	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0			<2.0		ng/L				NC	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0			<2.0		ng/L				NC	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0			<2.0		ng/L				NC	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0			<2.0		ng/L				NC	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0			<2.0		ng/L				NC	30

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

Lab Sample ID: 380-38463-A-1-A DU
Matrix: Water
Analysis Batch: 52376

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 52176

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0			<2.0		ng/L				NC	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0			<2.0		ng/L				NC	30
Perfluoropentanoic acid (PFPeA)	<2.0			<2.0		ng/L				NC	30
Perfluoroheptanesulfonic acid (PFHpS)	<2.0			<2.0		ng/L				NC	30
Perfluoropentanesulfonic acid (PFPeS)	<2.0			<2.0		ng/L				NC	30

Isotope Dilution	*DU %Recovery*	*DU Qualifier*	*Limits*
13C3 HFPO-DA	*90*		*50 - 200*
13C6 PFDA	*59*		*50 - 200*
13C5 PFHxA	*74*		*50 - 200*
13C4 PFHpA	*74*		*50 - 200*
13C8 PFOA	*69*		*50 - 200*
13C9 PFNA	*64*		*50 - 200*
13C7 PFUnA	*59*		*50 - 200*
13C2 PFDoA	*64*		*50 - 200*
13C4 PFBA	*81*		*50 - 200*
13C5 PFPeA	*76*		*50 - 200*
13C3 PFBS	*99*		*50 - 200*
13C3 PFHxS	*102*		*50 - 200*
13C8 PFOS	*93*		*50 - 200*
13C2-4:2-FTS	*88*		*50 - 200*
13C2-6:2-FTS	*95*		*50 - 200*
13C2-8:2-FTS	*97*		*50 - 200*

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

Lab Sample ID: MBL 810-49974/2-A
Matrix: Water
Analysis Batch: 50090

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 49974

Analyte	MBL Result	MBL Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<0.64		2.0		ng/L		03/02/23 07:29	03/03/23 19:23	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<0.64		2.0		ng/L		03/02/23 07:29	03/03/23 19:23	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.49		2.0		ng/L		03/02/23 07:29	03/03/23 19:23	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<0.62		2.0		ng/L		03/02/23 07:29	03/03/23 19:23	1
Perfluorobutanesulfonic acid (PFBS)	<0.71		2.0		ng/L		03/02/23 07:29	03/03/23 19:23	1
Perfluorodecanoic acid (PFDA)	<0.60		2.0		ng/L		03/02/23 07:29	03/03/23 19:23	1
Perfluorododecanoic acid (PFDoA)	<0.63		2.0		ng/L		03/02/23 07:29	03/03/23 19:23	1
Perfluoroheptanoic acid (PFHpA)	<0.52		2.0		ng/L		03/02/23 07:29	03/03/23 19:23	1
Perfluorohexanesulfonic acid (PFHxS)	<0.44		2.0		ng/L		03/02/23 07:29	03/03/23 19:23	1
Perfluorohexanoic acid (PFHxA)	<0.63		2.0		ng/L		03/02/23 07:29	03/03/23 19:23	1
Perfluorononanoic acid (PFNA)	<0.48		2.0		ng/L		03/02/23 07:29	03/03/23 19:23	1
Perfluorooctanesulfonic acid (PFOS)	<0.53		2.0		ng/L		03/02/23 07:29	03/03/23 19:23	1

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

Lab Sample ID: MBL 810-49974/2-A
Matrix: Water
Analysis Batch: 50090

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 49974

Analyte	MBL Result	MBL Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	<0.50		2.0		ng/L		03/02/23 07:29	03/03/23 19:23	1
Perfluoroundecanoic acid (PFUnA)	<0.63		2.0		ng/L		03/02/23 07:29	03/03/23 19:23	1
Perfluorotetradecanoic acid (PFTA)	<0.65		2.0		ng/L		03/02/23 07:29	03/03/23 19:23	1
Perfluorotridecanoic acid (PFTrDA)	<0.60		2.0		ng/L		03/02/23 07:29	03/03/23 19:23	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<0.51		2.0		ng/L		03/02/23 07:29	03/03/23 19:23	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<0.62		2.0		ng/L		03/02/23 07:29	03/03/23 19:23	1

Surrogate	*MBL %Recovery*	*MBL Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*110*		*70 - 130*	*03/02/23 07:29*	*03/03/23 19:23*	*1*
13C2 PFDA	*118*		*70 - 130*	*03/02/23 07:29*	*03/03/23 19:23*	*1*
d5-NEtFOSAA	*110*		*70 - 130*	*03/02/23 07:29*	*03/03/23 19:23*	*1*

Lab Sample ID: LCS 810-49974/3-A
Matrix: Water
Analysis Batch: 50090

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 49974

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	100	94.5		ng/L		95	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	100	94.8		ng/L		95	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	100	104		ng/L		104	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	100	95.1		ng/L		95	70 - 130
Perfluorobutanesulfonic acid (PFBS)	100	85.4		ng/L		85	70 - 130
Perfluorodecanoic acid (PFDA)	100	99.5		ng/L		99	70 - 130
Perfluorododecanoic acid (PFDoA)	100	97.1		ng/L		97	70 - 130
Perfluoroheptanoic acid (PFHpA)	100	102		ng/L		102	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	100	99.4		ng/L		99	70 - 130
Perfluorohexanoic acid (PFHxA)	100	95.4		ng/L		95	70 - 130
Perfluorononanoic acid (PFNA)	100	100		ng/L		100	70 - 130
Perfluorooctanesulfonic acid (PFOS)	100	95.3		ng/L		95	70 - 130
Perfluorooctanoic acid (PFOA)	100	99.4		ng/L		99	70 - 130
Perfluoroundecanoic acid (PFUnA)	100	98.0		ng/L		98	70 - 130
Perfluorotetradecanoic acid (PFTA)	100	96.9		ng/L		97	70 - 130
Perfluorotridecanoic acid (PFTrDA)	100	95.3		ng/L		95	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	100	94.0		ng/L		94	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	100	90.5		ng/L		90	70 - 130

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

Lab Sample ID: LCS 810-49974/3-A
Matrix: Water
Analysis Batch: 50090

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 49974

Surrogate	LCS %Recovery	LCS Qualifier	Limits
13C2 PFHxA	105		70 - 130
13C2 PFDA	115		70 - 130
d5-NEtFOSAA	106		70 - 130

Lab Sample ID: LLCS 810-49974/1-A
Matrix: Water
Analysis Batch: 50090

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 49974

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.00	1.74	J	ng/L		87	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.00	1.86	J	ng/L		93	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	2.02		ng/L		101	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	1.82	J	ng/L		91	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.00	1.72	J	ng/L		86	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	2.12		ng/L		106	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	2.07		ng/L		103	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	2.23		ng/L		111	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.00	1.89	J	ng/L		95	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	1.94	J	ng/L		97	50 - 150
Perfluorononanoic acid (PFNA)	2.00	2.12		ng/L		106	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.00	2.05		ng/L		102	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	2.06		ng/L		103	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	2.21		ng/L		111	50 - 150
Perfluorotetradecanoic acid (PFTA)	2.00	1.93	J	ng/L		97	50 - 150
Perfluorotridecanoic acid (PFTrDA)	2.00	1.96	J	ng/L		98	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	2.12		ng/L		106	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	1.78	J	ng/L		89	50 - 150

Surrogate	LLCS %Recovery	LLCS Qualifier	Limits
13C2 PFHxA	115		70 - 130
13C2 PFDA	122		70 - 130
d5-NEtFOSAA	120		70 - 130

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

Lab Sample ID: 810-54114-B-1-A MS
Matrix: Water
Analysis Batch: 50090

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 49974

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		96.3	91.2		ng/L		95	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		96.3	97.7		ng/L		101	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		96.3	99.8		ng/L		104	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	47		96.3	127		ng/L		83	70 - 130
Perfluorobutanesulfonic acid (PFBS)	<2.0		96.3	91.8		ng/L		95	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		96.3	102		ng/L		106	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		96.3	102		ng/L		106	70 - 130
Perfluoroheptanoic acid (PFHpA)	<2.0		96.3	103		ng/L		107	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	<2.0		96.3	94.6		ng/L		98	70 - 130
Perfluorohexanoic acid (PFHxA)	<2.0		96.3	98.1		ng/L		102	70 - 130
Perfluorononanoic acid (PFNA)	<2.0		96.3	102		ng/L		106	70 - 130
Perfluorooctanesulfonic acid (PFOS)	<2.0		96.3	96.6		ng/L		100	70 - 130
Perfluorooctanoic acid (PFOA)	<2.0		96.3	100		ng/L		104	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		96.3	102		ng/L		106	70 - 130
Perfluorotetradecanoic acid (PFTA)	<2.0		96.3	96.9		ng/L		101	70 - 130
Perfluorotridecanoic acid (PFTrDA)	<2.0		96.3	93.3		ng/L		97	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		96.3	90.4		ng/L		94	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		96.3	88.5		ng/L		92	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
13C2 PFHxA	*119*		*70 - 130*
13C2 PFDA	*121*		*70 - 130*
d5-NEtFOSAA	*106*		*70 - 130*

Lab Sample ID: 810-53743-AW-1-A DU
Matrix: Water
Analysis Batch: 50090

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 49974

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		<2.0		ng/L		NC	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		<2.0		ng/L		NC	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		<2.0		ng/L		NC	30

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

Lab Sample ID: 810-53743-AW-1-A DU
Matrix: Water
Analysis Batch: 50090

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 49974

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0			<2.0		ng/L				NC	30
Perfluorobutanesulfonic acid (PFBS)	<2.0			<2.0		ng/L				NC	30
Perfluorodecanoic acid (PFDA)	<2.0			<2.0		ng/L				NC	30
Perfluorododecanoic acid (PFDoA)	<2.0			<2.0		ng/L				NC	30
Perfluoroheptanoic acid (PFHpA)	<2.0			<2.0		ng/L				NC	30
Perfluorohexanesulfonic acid (PFHxS)	<2.0			<2.0		ng/L				NC	30
Perfluorohexanoic acid (PFHxA)	<2.0			<2.0		ng/L				NC	30
Perfluorononanoic acid (PFNA)	<2.0			<2.0		ng/L				NC	30
Perfluorooctanesulfonic acid (PFOS)	<2.0			<2.0		ng/L				NC	30
Perfluorooctanoic acid (PFOA)	<2.0			<2.0		ng/L				NC	30
Perfluoroundecanoic acid (PFUnA)	<2.0			<2.0		ng/L				NC	30
Perfluorotetradecanoic acid (PFTA)	<2.0			<2.0		ng/L				NC	30
Perfluorotridecanoic acid (PFTrDA)	<2.0			<2.0		ng/L				NC	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0			<2.0		ng/L				NC	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0			<2.0		ng/L				NC	30

Surrogate	*DU %Recovery*	*DU Qualifier*	*Limits*
13C2 PFHxA	*118*		*70 - 130*
13C2 PFDA	*114*		*70 - 130*
d5-NEtFOSAA	*113*		*70 - 130*

Lab Sample ID: MBL 810-50546/1-A
Matrix: Water
Analysis Batch: 50605

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 50546

Analyte	MBL Result	MBL Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<0.64		2.0		ng/L		03/07/23 06:31	03/07/23 20:32	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<0.64		2.0		ng/L		03/07/23 06:31	03/07/23 20:32	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.49		2.0		ng/L		03/07/23 06:31	03/07/23 20:32	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<0.62		2.0		ng/L		03/07/23 06:31	03/07/23 20:32	1
Perfluorobutanesulfonic acid (PFBS)	<0.71		2.0		ng/L		03/07/23 06:31	03/07/23 20:32	1
Perfluorodecanoic acid (PFDA)	<0.60		2.0		ng/L		03/07/23 06:31	03/07/23 20:32	1
Perfluorododecanoic acid (PFDoA)	<0.63		2.0		ng/L		03/07/23 06:31	03/07/23 20:32	1
Perfluoroheptanoic acid (PFHpA)	<0.52		2.0		ng/L		03/07/23 06:31	03/07/23 20:32	1
Perfluorohexanesulfonic acid (PFHxS)	<0.44		2.0		ng/L		03/07/23 06:31	03/07/23 20:32	1
Perfluorohexanoic acid (PFHxA)	<0.63		2.0		ng/L		03/07/23 06:31	03/07/23 20:32	1
Perfluorononanoic acid (PFNA)	<0.48		2.0		ng/L		03/07/23 06:31	03/07/23 20:32	1
Perfluorooctanesulfonic acid (PFOS)	<0.53		2.0		ng/L		03/07/23 06:31	03/07/23 20:32	1

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

Lab Sample ID: MBL 810-50546/1-A
Matrix: Water
Analysis Batch: 50605

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 50546

Analyte	MBL Result	MBL Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	<0.50		2.0		ng/L		03/07/23 06:31	03/07/23 20:32	1
Perfluoroundecanoic acid (PFUnA)	<0.63		2.0		ng/L		03/07/23 06:31	03/07/23 20:32	1
Perfluorotetradecanoic acid (PFTA)	<0.65		2.0		ng/L		03/07/23 06:31	03/07/23 20:32	1
Perfluorotridecanoic acid (PFTrDA)	<0.60		2.0		ng/L		03/07/23 06:31	03/07/23 20:32	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<0.51		2.0		ng/L		03/07/23 06:31	03/07/23 20:32	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<0.62		2.0		ng/L		03/07/23 06:31	03/07/23 20:32	1

Surrogate	*MBL %Recovery*	*MBL Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*105*		*70 - 130*	*03/07/23 06:31*	*03/07/23 20:32*	*1*
13C2 PFDA	*91*		*70 - 130*	*03/07/23 06:31*	*03/07/23 20:32*	*1*
d5-NEtFOSAA	*87*		*70 - 130*	*03/07/23 06:31*	*03/07/23 20:32*	*1*

Lab Sample ID: LLCS 810-50546/2-A
Matrix: Water
Analysis Batch: 50605

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 50546

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.00	1.94	J	ng/L		97	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.00	1.93	J	ng/L		96	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	2.10		ng/L		105	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	1.90	J	ng/L		95	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.00	1.84	J	ng/L		92	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	2.08		ng/L		104	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	1.89	J	ng/L		95	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	2.12		ng/L		106	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.00	2.14		ng/L		107	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	2.09		ng/L		105	50 - 150
Perfluorononanoic acid (PFNA)	2.00	2.17		ng/L		108	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.00	2.15		ng/L		108	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	2.15		ng/L		107	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	1.94	J	ng/L		97	50 - 150
Perfluorotetradecanoic acid (PFTA)	2.00	1.61	J	ng/L		81	50 - 150
Perfluorotridecanoic acid (PFTrDA)	2.00	1.89	J	ng/L		94	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	2.18		ng/L		109	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	1.97	J	ng/L		99	50 - 150

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

Lab Sample ID: LLCS 810-50546/2-A
Matrix: Water
Analysis Batch: 50605

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 50546

Surrogate	LLCS %Recovery	LLCS Qualifier	Limits
13C2 PFHxA	95		70 - 130
13C2 PFDA	98		70 - 130
d5-NEtFOSAA	97		70 - 130

Lab Sample ID: 380-38746-C-1-A LMS
Matrix: Water
Analysis Batch: 50605

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 50546

Analyte	Sample Result	Sample Qualifier	Spike Added	LMS Result	LMS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		1.96	1.87	J	ng/L		95	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		1.96	2.06		ng/L		105	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		1.96	2.08		ng/L		106	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		1.96	1.97	J	ng/L		101	50 - 150
Perfluorobutanesulfonic acid (PFBS)	<2.0		1.96	2.37		ng/L		121	50 - 150
Perfluorodecanoic acid (PFDA)	<2.0		1.96	2.16		ng/L		110	50 - 150
Perfluorododecanoic acid (PFDoA)	<2.0		1.96	2.00		ng/L		102	50 - 150
Perfluoroheptanoic acid (PFHpA)	<2.0		1.96	2.44		ng/L		125	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	<2.0		1.96	3.14		ng/L		96	50 - 150
Perfluorohexanoic acid (PFHxA)	<2.0		1.96	2.96		ng/L		110	50 - 150
Perfluorononanoic acid (PFNA)	<2.0		1.96	2.20		ng/L		112	50 - 150
Perfluorooctanesulfonic acid (PFOS)	<2.0		1.96	2.34		ng/L		120	50 - 150
Perfluorooctanoic acid (PFOA)	<2.0		1.96	2.94		ng/L		108	50 - 150
Perfluoroundecanoic acid (PFUnA)	<2.0		1.96	2.04		ng/L		104	50 - 150
Perfluorotetradecanoic acid (PFTA)	<2.0		1.96	1.99	J	ng/L		102	50 - 150
Perfluorotridecanoic acid (PFTrDA)	<2.0		1.96	2.04		ng/L		104	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		1.96	2.03		ng/L		104	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		1.96	1.94	J	ng/L		99	50 - 150

Surrogate	LMS %Recovery	LMS Qualifier	Limits
13C2 PFHxA	101		70 - 130
13C2 PFDA	96		70 - 130
d5-NEtFOSAA	99		70 - 130

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

Lab Sample ID: 380-39123-B-1-A DU
Matrix: Water
Analysis Batch: 50605

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 50546

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0			<2.0		ng/L				NC	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0			<2.0		ng/L				NC	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0			<2.0		ng/L				NC	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0			<2.0		ng/L				NC	30
Perfluorobutanesulfonic acid (PFBS)	2.4			2.32		ng/L				5	30
Perfluorodecanoic acid (PFDA)	<2.0			<2.0		ng/L				NC	30
Perfluorododecanoic acid (PFDoA)	<2.0			<2.0		ng/L				NC	30
Perfluoroheptanoic acid (PFHpA)	5.6			5.38		ng/L				4	30
Perfluorohexanesulfonic acid (PFHxS)	12			11.5		ng/L				1	30
Perfluorohexanoic acid (PFHxA)	11			11.0		ng/L				1	30
Perfluorononanoic acid (PFNA)	<2.0			<2.0		ng/L				NC	30
Perfluorooctanesulfonic acid (PFOS)	12			11.0		ng/L				5	30
Perfluorooctanoic acid (PFOA)	2.3			2.20		ng/L				4	30
Perfluoroundecanoic acid (PFUnA)	<2.0			<2.0		ng/L				NC	30
Perfluorotetradecanoic acid (PFTA)	<2.0			<2.0		ng/L				NC	30
Perfluorotridecanoic acid (PFTrDA)	<2.0			<2.0		ng/L				NC	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0			<2.0		ng/L				NC	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0			<2.0		ng/L				NC	30

Surrogate	*DU %Recovery*	*DU Qualifier*	*Limits*
13C2 PFHxA	*99*		*70 - 130*
13C2 PFDA	*93*		*70 - 130*
d5-NEtFOSAA	*93*		*70 - 130*

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

Lab Sample ID: 104298-B1
Matrix: BlankMatrix
Analysis Batch: O-40138

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: O-40138_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 17:28	1
1-Methylphenanthrene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 17:28	1
2,3,5-Trimethylnaphthalene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 17:28	1
2,6-Dimethylnaphthalene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 17:28	1
2-Methylnaphthalene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 17:28	1
Acenaphthene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 17:28	1

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

Lab Sample ID: 104298-B1
Matrix: BlankMatrix
Analysis Batch: O-40138

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: O-40138_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthylene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 17:28	1
Anthracene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 17:28	1
Benz[a]anthracene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 17:28	1
Benzo[a]pyrene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 17:28	1
Benzo[b]fluoranthene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 17:28	1
Benzo[e]pyrene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 17:28	1
Benzo[g,h,i]perylene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 17:28	1
Benzo[k]fluoranthene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 17:28	1
Biphenyl	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 17:28	1
Chrysene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 17:28	1
Dibenz[a,h]anthracene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 17:28	1
Dibenzo[a,l]pyrene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 17:28	1
Dibenzothiophene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 17:28	1
Disalicylidenepropanediamine	ND		0.1	0.05	µg/L		02/24/23 00:00	03/04/23 17:28	1
Fluoranthene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 17:28	1
Fluorene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 17:28	1
Indeno[1,2,3-cd]pyrene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 17:28	1
Naphthalene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 17:28	1
Perylene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 17:28	1
Phenanthrene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 17:28	1
Pyrene	ND		0.005	0.001	µg/L		02/24/23 00:00	03/04/23 17:28	1

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
(d10-Acenaphthene)	*85*		*27 - 133*	*02/24/23 00:00*	*03/04/23 17:28*	*1*
(d10-Phenanthrene)	*86*		*43 - 129*	*02/24/23 00:00*	*03/04/23 17:28*	*1*
(d12-Chrysene)	*85*		*52 - 144*	*02/24/23 00:00*	*03/04/23 17:28*	*1*
(d12-Perylene)	*83*		*36 - 161*	*02/24/23 00:00*	*03/04/23 17:28*	*1*
(d8-Naphthalene)	*78*		*25 - 125*	*02/24/23 00:00*	*03/04/23 17:28*	*1*

Lab Sample ID: 104298-BS1
Matrix: BlankMatrix
Analysis Batch: O-40138

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: O-40138_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1-Methylnaphthalene	0.5	0.413		µg/L		83	31 - 128
1-Methylphenanthrene	0.5	0.436		µg/L		87	66 - 127
2,3,5-Trimethylnaphthalene	0.5	0.429		µg/L		86	55 - 122
2,6-Dimethylnaphthalene	0.5	0.423		µg/L		85	48 - 120
2-Methylnaphthalene	0.5	0.407		µg/L		81	47 - 130
Acenaphthene	0.5	0.421		µg/L		84	53 - 131
Acenaphthylene	0.5	0.418		µg/L		84	43 - 140
Anthracene	0.5	0.429		µg/L		86	58 - 135
Benz[a]anthracene	0.5	0.408		µg/L		82	55 - 145
Benzo[a]pyrene	0.5	0.406		µg/L		81	51 - 143
Benzo[b]fluoranthene	0.5	0.444		µg/L		89	46 - 165
Benzo[e]pyrene	0.5	0.432		µg/L		86	42 - 152
Benzo[g,h,i]perylene	0.5	0.434		µg/L		87	63 - 133
Benzo[k]fluoranthene	0.5	0.429		µg/L		86	56 - 145

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

Lab Sample ID: 104298-BS1
Matrix: BlankMatrix
Analysis Batch: O-40138

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: O-40138_P

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Biphenyl			0.5	0.417		µg/L		83	56 - 119		
Chrysene			0.5	0.405		µg/L		81	56 - 141		
Dibenz[a,h]anthracene			0.5	0.521		µg/L		104	55 - 150		
Dibenzo[a,l]pyrene			0.5	0.42		µg/L		84	50 - 150		
Dibenzothiophene			0.5	0.428		µg/L		86	46 - 126		
Disalicylidenepropanediamine			50	43.7		µg/L		87	50 - 150		
Fluoranthene			0.5	0.433		µg/L		87	60 - 146		
Fluorene			0.5	0.428		µg/L		86	58 - 131		
Indeno[1,2,3-cd]pyrene			0.5	0.466		µg/L		93	50 - 151		
Naphthalene			0.5	0.399		µg/L		80	41 - 126		
Perylene			0.5	0.407		µg/L		81	48 - 141		
Phenanthrene			0.5	0.43		µg/L		86	67 - 127		
Pyrene			0.5	0.434		µg/L		87	54 - 156		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
(d10-Acenaphthene)	*88*		*27 - 133*
(d10-Phenanthrene)	*89*		*43 - 129*
(d12-Chrysene)	*83*		*52 - 144*
(d12-Perylene)	*89*		*36 - 161*
(d8-Naphthalene)	*82*		*25 - 125*

Lab Sample ID: 104298-BS2
Matrix: BlankMatrix
Analysis Batch: O-40138

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: O-40138_P

Analyte			Spike Added	LCS DUP Result	LCS DUP Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1-Methylnaphthalene			0.5	0.386		µg/L		77	31 - 128	8	30
1-Methylphenanthrene			0.5	0.42		µg/L		84	66 - 127	4	30
2,3,5-Trimethylnaphthalene			0.5	0.405		µg/L		81	55 - 122	6	30
2,6-Dimethylnaphthalene			0.5	0.391		µg/L		78	48 - 120	9	30
2-Methylnaphthalene			0.5	0.384		µg/L		77	47 - 130	5	30
Acenaphthene			0.5	0.405		µg/L		81	53 - 131	4	30
Acenaphthylene			0.5	0.397		µg/L		79	43 - 140	6	30
Anthracene			0.5	0.417		µg/L		83	58 - 135	4	30
Benz[a]anthracene			0.5	0.397		µg/L		79	55 - 145	4	30
Benzo[a]pyrene			0.5	0.402		µg/L		80	51 - 143	1	30
Benzo[b]fluoranthene			0.5	0.43		µg/L		86	46 - 165	3	30
Benzo[e]pyrene			0.5	0.41		µg/L		82	42 - 152	5	30
Benzo[g,h,i]perylene			0.5	0.419		µg/L		84	63 - 133	4	30
Benzo[k]fluoranthene			0.5	0.399		µg/L		80	56 - 145	7	30
Biphenyl			0.5	0.395		µg/L		79	56 - 119	5	30
Chrysene			0.5	0.381		µg/L		76	56 - 141	6	30
Dibenz[a,h]anthracene			0.5	0.49		µg/L		98	55 - 150	6	30
Dibenzo[a,l]pyrene			0.5	0.417		µg/L		83	50 - 150	1	30
Dibenzothiophene			0.5	0.412		µg/L		82	46 - 126	5	30
Disalicylidenepropanediamine			50	49.2		µg/L		98	50 - 150	12	30
Fluoranthene			0.5	0.42		µg/L		84	60 - 146	4	30
Fluorene			0.5	0.413		µg/L		83	58 - 131	4	30

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

Lab Sample ID: 104298-BS2
Matrix: BlankMatrix
Analysis Batch: O-40138

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: O-40138_P

Analyte			Spike Added	LCS DUP Result	LCS DUP Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Indeno[1,2,3-cd]pyrene			0.5	0.44		µg/L		88	50 - 151	6	30
Naphthalene			0.5	0.375		µg/L		75	41 - 126	6	30
Perylene			0.5	0.376		µg/L		75	48 - 141	8	30
Phenanthrene			0.5	0.419		µg/L		84	67 - 127	2	30
Pyrene			0.5	0.415		µg/L		83	54 - 156	5	30

Surrogate	*LCS DUP %Recovery*	*LCS DUP Qualifier*	*Limits*
(d10-Acenaphthene)	*84*		*27 - 133*
(d10-Phenanthrene)	*86*		*43 - 129*
(d12-Chrysene)	*81*		*52 - 144*
(d12-Perylene)	*84*		*36 - 161*
(d8-Naphthalene)	*78*		*25 - 125*

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

Lab Sample ID: 23VGH7B08B
Matrix: WATER
Analysis Batch: 23VGH7B08

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			02/25/23 12:33	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
BROMOFLUOROBENZENE					*02/25/23 12:33*	*1*

Lab Sample ID: 23VGH7B08L
Matrix: WATER
Analysis Batch: 23VGH7B08

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	0.450		mg/L		90	60 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
BROMOFLUOROBENZENE	*109*		*70 - 130*

Lab Sample ID: 23B265-01M
Matrix: WATER
Analysis Batch: 23VGH7B08

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
GASOLINE	ND		0.500	0.510		mg/L		102	50 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
BROMOFLUOROBENZENE	*116*		*60 - 140*

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

Lab Sample ID: 23B265-01S
Matrix: WATER
Analysis Batch: 23VGH7B08

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
GASOLINE	ND		0.500	0.479		mg/L		96	50 - 130	6	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
BROMOFLUOROBENZENE	*111*		*60 - 140*

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

Lab Sample ID: 23DSC005WB
Matrix: WATER
Analysis Batch: 23DSC005W

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			03/06/23 17:08	1
MOTOR OIL	ND	U	0.050		mg/L			03/06/23 17:08	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
BROMOBENZENE					*03/06/23 17:08*	*1*
HEXACOSANE					*03/06/23 17:08*	*1*

Lab Sample ID: 23DSC005WL
Matrix: WATER
Analysis Batch: 23DSC005W

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	2.88		mg/L		115	50 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
BROMOBENZENE	*98*		*60 - 130*
HEXACOSANE	*110*		*60 - 130*

LCMS

Prep Batch: 49974

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-38620-1	AIEA WELLS PUMPS 1&2 P2 (260) (331-203-TP	Total/NA	Drinking Water	537.1 DW	
380-38620-2	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	Total/NA	Drinking Water	537.1 DW	
380-38620-3	HALAWA WELLS UNITS 1&2 P1 (331-206-TP06	Total/NA	Drinking Water	537.1 DW	
MBL 810-49974/2-A	Method Blank	Total/NA	Water	537.1 DW	
LCS 810-49974/3-A	Lab Control Sample	Total/NA	Water	537.1 DW	
LLCS 810-49974/1-A	Lab Control Sample	Total/NA	Water	537.1 DW	
810-54114-B-1-A MS	Matrix Spike	Total/NA	Water	537.1 DW	
810-53743-AW-1-A DU	Duplicate	Total/NA	Water	537.1 DW	

Analysis Batch: 50090

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-38620-1	AIEA WELLS PUMPS 1&2 P2 (260) (331-203-TP	Total/NA	Drinking Water	537.1	49974
380-38620-2	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	Total/NA	Drinking Water	537.1	49974
380-38620-3	HALAWA WELLS UNITS 1&2 P1 (331-206-TP06	Total/NA	Drinking Water	537.1	49974
MBL 810-49974/2-A	Method Blank	Total/NA	Water	537.1	49974
LCS 810-49974/3-A	Lab Control Sample	Total/NA	Water	537.1	49974
LLCS 810-49974/1-A	Lab Control Sample	Total/NA	Water	537.1	49974
810-54114-B-1-A MS	Matrix Spike	Total/NA	Water	537.1	49974
810-53743-AW-1-A DU	Duplicate	Total/NA	Water	537.1	49974

Prep Batch: 50546

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-38620-9	FB HALAWA WELLS UNIT 1&2 P1	Total/NA	Water	537.1 DW	
MBL 810-50546/1-A	Method Blank	Total/NA	Water	537.1 DW	
LLCS 810-50546/2-A	Lab Control Sample	Total/NA	Water	537.1 DW	
380-38746-C-1-A LMS	Matrix Spike	Total/NA	Water	537.1 DW	
380-39123-B-1-A DU	Duplicate	Total/NA	Water	537.1 DW	

Analysis Batch: 50605

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-38620-9	FB HALAWA WELLS UNIT 1&2 P1	Total/NA	Water	537.1	50546
MBL 810-50546/1-A	Method Blank	Total/NA	Water	537.1	50546
LLCS 810-50546/2-A	Lab Control Sample	Total/NA	Water	537.1	50546
380-38746-C-1-A LMS	Matrix Spike	Total/NA	Water	537.1	50546
380-39123-B-1-A DU	Duplicate	Total/NA	Water	537.1	50546

Prep Batch: 51657

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-38620-9	FB HALAWA WELLS UNIT 1&2 P1	Total/NA	Water	533	
MBL 810-51657/1-A	Method Blank	Total/NA	Water	533	
LLCS 810-51657/2-A	Lab Control Sample	Total/NA	Water	533	
810-54079-A-1-A MS	Matrix Spike	Total/NA	Water	533	
380-38570-D-3-A DU	Duplicate	Total/NA	Water	533	

Analysis Batch: 52107

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-38620-9	FB HALAWA WELLS UNIT 1&2 P1	Total/NA	Water	533	51657
MBL 810-51657/1-A	Method Blank	Total/NA	Water	533	51657
LLCS 810-51657/2-A	Lab Control Sample	Total/NA	Water	533	51657
810-54079-A-1-A MS	Matrix Spike	Total/NA	Water	533	51657
380-38570-D-3-A DU	Duplicate	Total/NA	Water	533	51657

LCMS

Prep Batch: 52176

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-38620-1	AIEA WELLS PUMPS 1&2 P2 (260) (331-203-TP	Total/NA	Drinking Water	533	
380-38620-2	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	Total/NA	Drinking Water	533	
380-38620-3	HALAWA WELLS UNITS 1&2 P1 (331-206-TP06	Total/NA	Drinking Water	533	
MBL 810-52176/1-A	Method Blank	Total/NA	Water	533	
LCS 810-52176/3-A	Lab Control Sample	Total/NA	Water	533	
LLCS 810-52176/2-A	Lab Control Sample	Total/NA	Water	533	
810-54543-C-2-A LMS	Matrix Spike	Total/NA	Water	533	
380-38463-A-1-A DU	Duplicate	Total/NA	Water	533	

Analysis Batch: 52376

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-38620-1	AIEA WELLS PUMPS 1&2 P2 (260) (331-203-TP	Total/NA	Drinking Water	533	52176
380-38620-2	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	Total/NA	Drinking Water	533	52176
380-38620-3	HALAWA WELLS UNITS 1&2 P1 (331-206-TP06	Total/NA	Drinking Water	533	52176
MBL 810-52176/1-A	Method Blank	Total/NA	Water	533	52176
LCS 810-52176/3-A	Lab Control Sample	Total/NA	Water	533	52176
LLCS 810-52176/2-A	Lab Control Sample	Total/NA	Water	533	52176
810-54543-C-2-A LMS	Matrix Spike	Total/NA	Water	533	52176
380-38463-A-1-A DU	Duplicate	Total/NA	Water	533	52176

Subcontract

Analysis Batch: O-40138

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-38620-1	AIEA WELLS PUMPS 1&2 P2 (260) (331-203-TP	Total/NA	Drinking Water	625 PAH Physis LL (EAL) + TICs	O-40138_P
380-38620-2	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	Total/NA	Drinking Water	625 PAH Physis LL (EAL) + TICs	O-40138_P
380-38620-3	HALAWA WELLS UNITS 1&2 P1 (331-206-TP06	Total/NA	Drinking Water	625 PAH Physis LL (EAL) + TICs	O-40138_P
104298-B1	Method Blank	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-40138_P
104298-BS1	Lab Control Sample	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-40138_P
104298-BS2	Lab Control Sample Dup	Total/NA	BlankMatrix	625 PAH Physis LL (EAL) + TICs	O-40138_P

Analysis Batch: 23DSC005W

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-38620-1	AIEA WELLS PUMPS 1&2 P2 (260) (331-203-TP	Total/NA	Drinking Water	8015 LL DRO/MRO	
380-38620-2	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	Total/NA	Drinking Water	8015 LL DRO/MRO	
380-38620-3	HALAWA WELLS UNITS 1&2 P1 (331-206-TP06	Total/NA	Drinking Water	8015 LL DRO/MRO	
23DSC005WB	Method Blank	Total/NA	WATER	8015 LL DRO/MRO	
23DSC005WL	Lab Control Sample	Total/NA	WATER	8015 LL DRO/MRO	

Analysis Batch: 23VGH7B08

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-38620-1	AIEA WELLS PUMPS 1&2 P2 (260) (331-203-TP	Total/NA	Drinking Water	8015 Gas (Purgeable) LL (EAL)	

Subcontract (Continued)

Analysis Batch: 23VGH7B08 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-38620-2	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	Total/NA	Drinking Water	8015 Gas (Purgeable) LL (EAL)	
380-38620-3	HALAWA WELLS UNITS 1&2 P1 (331-206-TP06	Total/NA	Drinking Water	8015 Gas (Purgeable) LL (EAL)	
380-38620-4	TB:AIEA GULCH WELLS P2 (331-202-TP072)	Total/NA	Water	8015 Gas (Purgeable) LL (EAL)	
380-38620-5	TB: AIEA WELLS PUMPS 1&2 P2 (260) (331-203	Total/NA	Water	8015 Gas (Purgeable) LL (EAL)	
380-38620-6	TB: HALAWA WELLS UNITS 1&2 P1 (331-206-TI	Total/NA	Water	8015 Gas (Purgeable) LL (EAL)	
23VGH7B08B	Method Blank	Total/NA	WATER	8015 Gas (Purgeable) LL (EAL)	
23VGH7B08L	Lab Control Sample	Total/NA	WATER	8015 Gas (Purgeable) LL (EAL)	
23B265-01M	Matrix Spike	Total/NA	WATER	8015 Gas (Purgeable) LL (EAL)	
23B265-01S	Matrix Spike Duplicate	Total/NA	WATER	8015 Gas (Purgeable) LL (EAL)	

Prep Batch: O-40138_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-38620-1	AIEA WELLS PUMPS 1&2 P2 (260) (331-203-TP	Total/NA	Drinking Water	EPA_625	
380-38620-2	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	Total/NA	Drinking Water	EPA_625	
380-38620-3	HALAWA WELLS UNITS 1&2 P1 (331-206-TP06	Total/NA	Drinking Water	EPA_625	
104298-B1	Method Blank	Total/NA	BlankMatrix	EPA_625	
104298-BS1	Lab Control Sample	Total/NA	BlankMatrix	EPA_625	
104298-BS2	Lab Control Sample Dup	Total/NA	BlankMatrix	EPA_625	

Client Sample ID: AIEA WELLS PUMPS 1&2 P2 (260) (331-203-TP400)

Lab Sample ID: 380-38620-1

Date Collected: 02/21/23 10:17

Matrix: Drinking Water

Date Received: 02/23/23 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			52176	NR	EA SB	03/20/23 06:26
Total/NA	Analysis	533		1	52376	CM	EA SB	03/21/23 21:16
Total/NA	Prep	537.1 DW			49974	SS	EA SB	03/02/23 07:29
Total/NA	Analysis	537.1		1	50090	MH	EA SB	03/03/23 23:05
Total/NA	Prep	EPA_625		1	O-40138_P			02/24/23 00:00
Total/NA	Analysis	625 PAH Physis LL (EAL) + TICs		1	O-40138	YC		03/04/23 22:40
Total/NA	Analysis	8015 Gas (Purgeable) LL (EAL)		1	23VGH7B08	SCerva		02/25/23 15:40
Total/NA	Analysis	8015 LL DRO/MRO		1	23DSC005W	SDees		03/06/23 18:04

Client Sample ID: AIEA GULCH WELLS PUMP 2 (331-202-TP072)

Lab Sample ID: 380-38620-2

Date Collected: 02/21/23 10:40

Matrix: Drinking Water

Date Received: 02/23/23 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			52176	NR	EA SB	03/20/23 06:26
Total/NA	Analysis	533		1	52376	CM	EA SB	03/21/23 21:29
Total/NA	Prep	537.1 DW			49974	SS	EA SB	03/02/23 07:29
Total/NA	Analysis	537.1		1	50090	MH	EA SB	03/03/23 23:16
Total/NA	Prep	EPA_625		1	O-40138_P			02/24/23 00:00
Total/NA	Analysis	625 PAH Physis LL (EAL) + TICs		1	O-40138	YC		03/05/23 00:24
Total/NA	Analysis	8015 Gas (Purgeable) LL (EAL)		1	23VGH7B08	SCerva		02/25/23 17:32
Total/NA	Analysis	8015 LL DRO/MRO		1	23DSC005W	SDees		03/06/23 18:22

Client Sample ID: HALAWA WELLS UNITS 1&2 P1 (331-206-TP065)

Lab Sample ID: 380-38620-3

Date Collected: 02/21/23 09:48

Matrix: Drinking Water

Date Received: 02/23/23 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			52176	NR	EA SB	03/20/23 06:26
Total/NA	Analysis	533		1	52376	CM	EA SB	03/21/23 21:43
Total/NA	Prep	537.1 DW			49974	SS	EA SB	03/02/23 07:29
Total/NA	Analysis	537.1		1	50090	MH	EA SB	03/03/23 23:27
Total/NA	Prep	EPA_625		1	O-40138_P			02/24/23 00:00
Total/NA	Analysis	625 PAH Physis LL (EAL) + TICs		1	O-40138	YC		03/05/23 02:08
Total/NA	Analysis	8015 Gas (Purgeable) LL (EAL)		1	23VGH7B08	SCerva		02/25/23 18:09
Total/NA	Analysis	8015 LL DRO/MRO		1	23DSC005W	SDees		03/06/23 18:41

Client Sample ID: TB:AIEA GULCH WELLS P2 (331-202-TP072)

Lab Sample ID: 380-38620-4

Date Collected: 02/21/23 10:40

Matrix: Water

Date Received: 02/23/23 10:30

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	23VGH7B08	SCerva		02/25/23 19:24

Client Sample ID: TB: AIEA WELLS PUMPS 1&2 P2 (260) (331-203-TP400)

Lab Sample ID: 380-38620-5

Date Collected: 02/21/23 10:17

Matrix: Water

Date Received: 02/23/23 10:30

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	23VGH7B08	SCerva		02/25/23 20:01

Client Sample ID: TB: HALAWA WELLS UNITS 1&2 P1 (331-206-TP065)

Lab Sample ID: 380-38620-6

Date Collected: 02/21/23 09:48

Matrix: Water

Date Received: 02/23/23 10:30

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	23VGH7B08	SCerva		02/25/23 20:39

Client Sample ID: FB HALAWA WELLS UNIT 1&2 P1

Lab Sample ID: 380-38620-9

Date Collected: 02/21/23 09:48

Matrix: Water

Date Received: 02/23/23 10:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			51657	NR	EA SB	03/15/23 06:26
Total/NA	Analysis	533		1	52107	CM	EA SB	03/20/23 03:59
Total/NA	Prep	537.1 DW			50546	AD	EA SB	03/07/23 06:31
Total/NA	Analysis	537.1		1	50605	MH	EA SB	03/08/23 00:31

Laboratory References:

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

EA SB = Eurofins Eaton Analytical South Bend, 110 S Hill Street, South Bend, IN 46617, TEL (574)233-4777

Accreditation/Certification Summary

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

Job ID: 380-38620-1

Laboratory: Eurofins Eaton Analytical South Bend

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	ISO/IEC 17025	5794.01	07-31-24
Alabama	State	40700	06-30-23
Alaska	State	IN00035	06-30-23
Arizona	State	AZ0432	07-26-23
Arkansas (DW)	State	EPA IN00035	06-30-23
California	State	2920	06-30-23
Colorado	State	IN00035	02-29-24
Connecticut	State	PH-0132	03-31-22 *
Delaware (DW)	State	IN00035	06-30-23
Florida	NELAP	E87775	06-30-23
Georgia (DW)	State	929	06-30-23
Hawaii	State	IN035	06-30-23
Idaho (DW)	State	IN00035	12-31-23
IL Dept. of Public Health (Micro)	State	17767	06-30-23
Illinois	NELAP	200001	09-30-23
Indiana	State	C-71-01	12-31-25
Indiana (Micro)	State	M-76-07	12-31-25
Iowa	State	IA Lab #098	11-01-23
Kansas	NELAP	E-10233	10-31-23
Kentucky (DW)	State	KY90056	04-02-23
Louisiana (DW)	State	LA014	12-31-23
Maine	State	IN00035	05-01-23
Maryland	State	209	03-31-23
Massachusetts	State	M-IN035	06-30-23
MI - RadChem Recognition	State	9926	06-30-23
Michigan	State	9926	03-31-23
Minnesota	NELAP	1989807	12-31-23
Mississippi	State	IN00035	06-30-22 *
Missouri	State	880	09-30-24
Montana (DW)	State	CERT0026	01-02-24
Nebraska	State	NE-OS-05-04	06-30-23
Nevada	State	IN000352021-2	07-31-23
New Hampshire	NELAP	2124	11-05-23
New Jersey	NELAP	IN598	06-30-23
New Mexico	State	IN00035	06-30-23
New York	NELAP	11398	03-29-23
North Carolina (DW)	State	18700	07-31-23
North Dakota	State	R-035	06-30-23
Ohio	State	87775	06-30-23
Oklahoma	NELAP	D9508	08-31-23
Oregon	NELAP	4156	09-16-23
Pennsylvania	NELAP	68-00466	04-03-23
Puerto Rico	State	IN00035	04-01-24
Rhode Island	State	LAO00343	12-30-23
South Carolina	State	95005001	06-30-23
South Dakota (DW)	State	IN00035	06-30-23
Tennessee	State	TN02973	06-30-23
Texas	NELAP	T104704187-22-16	12-31-23
Texas	TCEQ Water Supply	TX207	06-30-23
USEPA Reg X SDWA	US Federal Programs	IN00035	08-24-24

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

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

Job ID: 380-38620-1

Laboratory: Eurofins Eaton Analytical South Bend (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
USEPA UCMR 5	US Federal Programs	IN00035	12-31-25
Utah	NELAP	IN00035	07-31-23
Vermont	State	VT-8775	11-15-23
Virginia	NELAP	460275	03-14-24
Washington	State	C837	01-01-24
West Virginia (DW)	State	9927 C	12-31-23
Wisconsin	State	999766900	08-31-23
Wisconsin (Micro)	State	10121	12-31-22 *
Wyoming	State	8TMS-L	06-30-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

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

Job ID: 380-38620-1

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

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 SB = Eurofins Eaton Analytical South Bend, 110 S Hill Street, South Bend, IN 46617, TEL (574)233-4777

Sample Summary

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

Job ID: 380-38620-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
380-38620-1	AIEA WELLS PUMPS 1&2 P2 (260) (331-203-TP400)	Drinking Water	02/21/23 10:17	02/23/23 10:30
380-38620-2	AIEA GULCH WELLS PUMP 2 (331-202-TP072)	Drinking Water	02/21/23 10:40	02/23/23 10:30
380-38620-3	HALAWA WELLS UNITS 1&2 P1 (331-206-TP065)	Drinking Water	02/21/23 09:48	02/23/23 10:30
380-38620-4	TB:AIEA GULCH WELLS P2 (331-202-TP072)	Water	02/21/23 10:40	02/23/23 10:30
380-38620-5	TB: AIEA WELLS PUMPS 1&2 P2 (260) (331-203-TP400)	Water	02/21/23 10:17	02/23/23 10:30
380-38620-6	TB: HALAWA WELLS UNITS 1&2 P1 (331-206-TP065)	Water	02/21/23 09:48	02/23/23 10:30
380-38620-9	FB HALAWA WELLS UNIT 1&2 P1	Water	02/21/23 09:48	02/23/23 10:30

EMAX LABORATORIES, INC.

SDG Login Review Sheet

Date: 2/28/2023

Client Code: EEA1201_
Client: Eurofins Eaton Analytical
Project: 380-38620

EMAX PM: Richard

Send Report To: Attn: Jackie Contreras
Company: Eurofins Eaton Analytical
Address: 750 Royal Oaks Dr., Suite 100
Monrovia, CA 91016-3629

Task Order #: NA

SDG: 23B265 **DATE/ TIME RECEIVED:** 2/24/2023 11:53 **DUE DATE:** 3/10/2023

Lwks ID	Control #	Sample ID	Matrix	Coll Date	Time	Lwks Method	Analysis
EU84867	B265-01	380-38620-1	WATER	2/21/2023	10:17	TPHDMW	TPH Diesel & Motor Oil
	B265-01	380-38620-1	WATER	2/21/2023	10:17	TPHGW	TPH Gasoline
EU84873	B265-01M	380-38620-1MS	WATER	2/21/2023	10:17	TPHGW	TPH Gasoline
EU84874	B265-01S	380-38620-1MSD	WATER	2/21/2023	10:17	TPHGW	TPH Gasoline
EU84868	B265-02	380-38620-2	WATER	2/21/2023	10:40	TPHDMW	TPH Diesel & Motor Oil
	B265-02	380-38620-2	WATER	2/21/2023	10:40	TPHGW	TPH Gasoline
EU84869	B265-03	380-38620-3	WATER	2/21/2023	9:48	TPHDMW	TPH Diesel & Motor Oil
	B265-03	380-38620-3	WATER	2/21/2023	9:48	TPHGW	TPH Gasoline
EU84870	B265-04	380-38620-4	WATER	2/21/2023	10:40	TPHGW	TPH Gasoline
EU84871	B265-05	380-38620-5	WATER	2/21/2023	10:17	TPHGW	TPH Gasoline
EU84872	B265-06	380-38620-6	WATER	2/21/2023	9:48	TPHGW	TPH Gasoline

Report Format: REVIEW

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

Chain of Custody Record

23B2605

eurofins | Environment Testing

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arada, Rachelle	Carrier Tracking No(s):	COC No: 380-40570.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Rachelle.Arada@et.eurofinsus.com	State of Origin: Hawaii	Page: Page 1 of 1
Company: EMAX Laboratories Inc		Accreditations Required (See note): State - Hawaii		Job #: 380-38620-1
Address: 3051 Fujita Street, ,	Due Date Requested: 3/9/2023			
City: Torrance	TAT Requested (days):			
State, Zip: CA, 90505				
Phone:	PO #:			
Email:	WO #:			
Project Name: RED-HILL	Project #: 38001111			
Site: Honolulu BWS Sites	SSOW#:			

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)

Other:

Analysis Requested

	Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUB (8015 Gas (Purgeable) LL (EAL))/ 8015 Gas (Purgeable) LL (EAL)	SUB (8015 LL DRO/MRO)/ 8015 LL DRO/MRO	Total Number of containers	Special Instructions/Note:
				Preservation Code:							
1	AIEA WELLS PUMPS 1&2 P2 (260) (331-203-TP400) (380-38620	2/21/23	10:17 Hawaiian		Water			X	X	6	See Attached Instructions
2	AIEA GULCH WELLS PUMP 2 (331-202-TP072) (380-38620-2)	2/21/23	10:40 Hawaiian		Water			X	X	6	See Attached Instructions
3	HALAWA WELLS UNITS 1 & 2 P1 (331-206-TP065) (380-38620-	2/21/23	09:48 Hawaiian		Water			X	X	6	See Attached Instructions
4	TB:AIEA GULCH WELLS P2 (331-202-TP072) (380-38620-4)	2/21/23	10:40 Hawaiian		Water			X	X	2	See Attached Instructions
5	TB: AIEA WELLS PUMPS 1&2 P2 (260) (331-203-TP400) (380-3	2/21/23	10:17 Hawaiian		Water			X	X	2	See Attached Instructions
6	TB: HALAWA WELLS UNITS 1&2 P1 (331-206-TP065) (380-3862	2/21/23	09:48 Hawaiian		Water			X	X	2	See Attached Instructions

Note: Since laboratory accreditations are subject to change, Eurofins Eaton Analytical, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/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	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Chris Brook	2-24-23 1010	EOA	Manuel	2-24-23 10:26	DCS
2	Manuel	2-24-23 11:53	DCS		02/24/23 11:53	EMAX
3						

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 3.3/3.1 CF: -0.2

Ver: 06/08/2021

EMAX LABORATORIES, INC.

REFERENCE: EMAX-SM02 Rev. 12

SAMPLE RECEIPT FORM 1

Type of Delivery	Airbill / Tracking Number	ECN 23B265
☐ Fedex ☐ UPS ☐ GSO ☐ Others		Recipient Jocelyne Solis-Ramos
☐ EMAX Courier ☑ Client Delivery		Date 02/24/23 Time 11:53

COC INSPECTION

☑ Client Name	☑ Client PM/FC	☐ Sampler Name	☑ Sampling Date/Time	☑ Sample ID	☑ Matrix
☑ Address	☑ Tel # / Fax #	☐ Courier Signature	☑ Analysis Required	☐ Preservative (if any)	☑ TAT
Safety Issues (if any)	☐ High concentrations expected	☐ From Superfund Site	☐ Rad screening required		

Note: _____

PACKAGING INSPECTION

Container	☑ Cooler	☐ Box	☐ Other		
Condition correction factor: -0.2	☐ Custody Seal	☐ Intact	☐ Damaged		
Packaging	☑ Bubble Pack	☐ Styrofoam	☐ Popcorn	☐ Sufficient	☐ _____
Temperatures (Cool, ≤6 °C but not frozen)	☑ Cooler 1 3.3/3.1 °C	☐ Cooler 2 _____ °C	☐ Cooler 3 _____ °C	☐ Cooler 4 _____ °C	☐ Cooler 5 _____ °C
	☐ Cooler 6 _____ °C	☐ Cooler 7 _____ °C	☐ Cooler 8 _____ °C	☐ Cooler 9 _____ °C	☐ Cooler 10 _____ °C
Thermometer:	(A) - S/N 221052768	B - S/N 210760237	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
2	12	D19	~400mL full for Diesel/Motor oil	R8
4	19,20	D8/D7*	two dates listed - 2/3/23 & 2/21/2023	R1
			two times listed - 8:20 & 10:40	
5	22	D8/D7*	two dates listed - 2/3/23 & 2/21/2023	
			two times listed - 8:20 & 10:17	
6	24	D8/D7*	two dates listed - 2/3/23 & 2/21/2023	
			two times listed - 8:20 & 9:48	

c 2/24/23

RB 2/27/23

☐ 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: * out of HT if collected 2/3/23.

SAMPLE MATRIX IS DRINKING WATER? ☐ YES ☐ NO

☐ **Continue to next page.**

LEGEND:

Code	Description- Sample Management
D1	Analysis is not indicated in _____
D2	Analysis mismatch COC vs label
D3	Sample ID mismatch COC vs label
D4	Sample ID is not indicated in _____
D5	Container -[improper] [leaking] [broken]
D6	Date/Time is not indicated in _____
(D7)	Date/Time mismatch COC vs label
(D8)	Sample listed in COC is not received
D9	Sample received is not listed in COC
D10	No initial/date on corrections in COC/label
D11	Container count mismatch COC vs received
D12	Container size mismatch COC vs received

Code	Description-Sample Management
D13	Out of Holding Time
D14	Bubble is >6mm
D15	No trip blank in cooler
D16	Preservation not indicated in _____
D17	Preservation mismatch COC vs label
D18	Insufficient chemical preservative
(D19)	Insufficient Sample
D20	No filtration info for dissolved analysis
D21	No sample for moisture determination
D22	_____
D23	_____
D24	_____

Code	Description-Sample Management
R1	Proceed as indicated in ☑ COC ☐ Label
R2	Refer to attached instruction
R3	Cancel the analysis
R4	Use vial with smallest bubble first
R5	Log-in with latest sampling date and time+1 min
R6	Adjust pH as necessary
R7	Filter and preserved as necessary
R8	Informed Client
R9	
R10	
R11	
R12	

REVIEWS:

Sample Labeling Jocelyne Solis-Ramos Date 02/24/23

SRF Date 2/24/23

PM Date 2/27/23

SAMPLE RECEIPT FORM 2

SAMPLES RECEIVED FOR ECN: 238265

pH paper Lot #: N/A

LAB SAMPLE ID (*)	LAB SAMPLE CONTAINER ID	COOLER#	CONTAINER TYPE								CHEMICAL PRESERVATIVE											Filtered	
			Jar	Amber	HDPE	Encore	Vial	Tube	Bag	Other	NONE	HCl (pH<2)	HNO_3 (pH<2)	H_2SO_4 (pH<2)	ZnAc +NaOH (pH>9)	ZnAc +NaOH (pH>12)	NaOH (pH>10)	NaOH (pH≥12)	$Na_2S_2O_3$	Methanol	NaHSO4	Other	Yes	No
1	* 1	1					/					/							/				
	* 2						/					/							/				
	* 3						/					/							/				
	* 4						/					/							/				
	* 5			/								/							/				
	* 6			/								/							/				
2	* 7						/					/							/				
	* 8						/					/							/				
	* 9						/					/							/				
	* 10						/					/							/				
	* 1			/								/							/				
	* 2			/								/							/				
3	* 3						/					/							/				
	* 4						/					/							/				
	* 5						/					/							/				
	* 6						/					/							/				
	* 7			/								/							/				
	* 8			/								/							/				
4	* 9						/					/							/				
	* 20						/					/							/				
5	* 1						/					/							/				
	* 2						/					/							/				
6	* 3	↓					/					/							/				
	* 4	1					/					/							/				
	* 5																						
	* 6																						
	* 7																						
	* 8																						
	* 9																						
	* 30																						

Nahdeen Nagana
02/24/23

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

March 07, 2023

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

Project Name: RED-HLL Project # 38001111 Job # 380-38620-1
Physis Project ID: 1407003-379

Dear Rachelle,

Enclosed are the analytical results for samples submitted to PHYSIS Environmental Laboratories, Inc. (PHYSIS) on 2/24/2023. A total of 3 samples were received for analysis in accordance with the attached chain of custody (COC). Per the COC, the samples were 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,
Rachel Hansen
Rachel Hansen
714 602-5320
Extension 203
rachelhansen@physislabs.com

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

PROJECT SAMPLE LIST

Eurofins Eaton Analytical

PHYSIS Project ID: 1407003-379

RED-HLL Project # 38001111 Job # 380-38620-1

Total Samples: 3

PHYSIS ID	Sample ID	Description	Date	Time	Matrix	Sample Type
104299	AIEA WELLS PUMPS 1&2 P2 (2631	631-203-TP400 (380-38620-1)	2/21/2023	10:17	Samplewater	Not Specified
104300	AIEA GULCH WELLS PUMP 2	631-202-TP072 (380-38620-2)	2/21/2023	10:40	Samplewater	Not Specified
104301	HALAWA WELLS UNITS 1 & 2 P3	631-206-TP065 (380-38620-3)	2/21/2023	9:48	Samplewater	Not Specified

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

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

1904 E. Wright Circle Anaheim, CA 92806 (714) 602-5320 fax (714) 602-5321 www.physislabs.com CA ELAP #2769

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.

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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.

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CASE NARRATIVE

QUALIFIER NOTES

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

ND

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

ANALYTICAL REPORT

PHYSIS Project ID: 1407003-379
Client: Eurofins Eaton Analytical
Project: RED-HLL Project # 38001111 Job # 380-38620-1

Base/Neutral Extractable Compounds

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Sample ID: 104299-R1	**AIEA WELLS PUMPS 1&2 P2 (260) 3 Matrix: Samplewater**						**Sampled:**	**21-Feb-23 10:17**		**Received:**	**24-Feb-23**
Disalicylidenepropanediamine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-40138	24-Feb-23	04-Mar-23
Sample ID: 104300-R1	**AIEA GULCH WELLS PUMP 2 331-20 Matrix: Samplewater**						**Sampled:**	**21-Feb-23 10:40**		**Received:**	**24-Feb-23**
Disalicylidenepropanediamine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-40138	24-Feb-23	05-Mar-23
Sample ID: 104301-R1	**HALAWA WELLS UNITS 1 & 2 P1 331 Matrix: Samplewater**						**Sampled:**	**21-Feb-23 9:48**		**Received:**	**24-Feb-23**
Disalicylidenepropanediamine	EPA 625.1	µg/L	ND	1	0.05	0.1	Total		O-40138	24-Feb-23	05-Mar-23

Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Sample ID: 104299-R1	**AIEA WELLS PUMPS 1&2 P2 (260) 3 Matrix: Samplewater**						**Sampled:**	**21-Feb-23 10:17**		**Received:**	**24-Feb-23**
(d10-Acenaphthene)	EPA 625.1	% Recovery	79	1			Total		O-40138	24-Feb-23	04-Mar-23
(d10-Phenanthrene)	EPA 625.1	% Recovery	82	1			Total		O-40138	24-Feb-23	04-Mar-23
(d12-Chrysene)	EPA 625.1	% Recovery	79	1			Total		O-40138	24-Feb-23	04-Mar-23
(d12-Perylene)	EPA 625.1	% Recovery	74	1			Total		O-40138	24-Feb-23	04-Mar-23
(d8-Naphthalene)	EPA 625.1	% Recovery	72	1			Total		O-40138	24-Feb-23	04-Mar-23
1-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	04-Mar-23
1-Methylphenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	04-Mar-23
2,3,5-Trimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	04-Mar-23
2,6-Dimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	04-Mar-23
2-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	04-Mar-23
Acenaphthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	04-Mar-23
Acenaphthylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	04-Mar-23
Anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	04-Mar-23
Benz[a]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	04-Mar-23
Benzo[a]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	04-Mar-23
Benzo[b]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	04-Mar-23
Benzo[e]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	04-Mar-23
Benzo[g,h,i]perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	04-Mar-23
Benzo[k]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	04-Mar-23
Biphenyl	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	04-Mar-23
Chrysene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	04-Mar-23
Dibenz[a,h]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	04-Mar-23
Dibenzo[a,l]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	04-Mar-23
Dibenzothiophene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	04-Mar-23

PHYSIS Project ID: 1407003-379
Client: Eurofins Eaton Analytical
Project: RED-HLL Project # 38001111 Job # 380-38620-1

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-40138	24-Feb-23	04-Mar-23
Fluorene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	04-Mar-23
Indeno[1,2,3-cd]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	04-Mar-23
Naphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	04-Mar-23
Perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	04-Mar-23
Phenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	04-Mar-23
Pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	04-Mar-23

Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Sample ID: 104300-R1	**AIEA GULCH WELLS PUMP 2 331-20 Matrix: Samplewater**						**Sampled:**	**21-Feb-23 10:40**		**Received:**	**24-Feb-23**
(d10-Acenaphthene)	EPA 625.1	% Recovery	82	1			Total		O-40138	24-Feb-23	05-Mar-23
(d10-Phenanthrene)	EPA 625.1	% Recovery	84	1			Total		O-40138	24-Feb-23	05-Mar-23
(d12-Chrysene)	EPA 625.1	% Recovery	82	1			Total		O-40138	24-Feb-23	05-Mar-23
(d12-Perylene)	EPA 625.1	% Recovery	80	1			Total		O-40138	24-Feb-23	05-Mar-23
(d8-Naphthalene)	EPA 625.1	% Recovery	77	1			Total		O-40138	24-Feb-23	05-Mar-23
1-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
1-Methylphenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
2,3,5-Trimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
2,6-Dimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
2-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
Acenaphthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
Acenaphthylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
Anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
Benz[a]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
Benzo[a]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
Benzo[b]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
Benzo[e]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
Benzo[g,h,i]perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
Benzo[k]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
Biphenyl	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
Chrysene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
Dibenz[a,h]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
Dibenzo[a,l]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
Dibenzothiophene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23

PHYSIS Project ID: 1407003-379
Client: Eurofins Eaton Analytical
Project: RED-HLL Project # 38001111 Job # 380-38620-1

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-40138	24-Feb-23	05-Mar-23
Fluorene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
Indeno[1,2,3-cd]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
Naphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
Perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
Phenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
Pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23

Polynuclear Aromatic Hydrocarbons

ANALYTE	Method	Units	RESULT	DF	MDL	RL	Fraction	QA CODE	Batch ID	Date Processed	Date Analyzed
Sample ID: 104301-R1	**HALAWA WELLS UNITS 1 & 2 P1 331 Matrix: Samplewater**						**Sampled:**	**21-Feb-23 9:48**		**Received:**	**24-Feb-23**
(d10-Acenaphthene)	EPA 625.1	% Recovery	83	1			Total		O-40138	24-Feb-23	05-Mar-23
(d10-Phenanthrene)	EPA 625.1	% Recovery	84	1			Total		O-40138	24-Feb-23	05-Mar-23
(d12-Chrysene)	EPA 625.1	% Recovery	82	1			Total		O-40138	24-Feb-23	05-Mar-23
(d12-Perylene)	EPA 625.1	% Recovery	83	1			Total		O-40138	24-Feb-23	05-Mar-23
(d8-Naphthalene)	EPA 625.1	% Recovery	76	1			Total		O-40138	24-Feb-23	05-Mar-23
1-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
1-Methylphenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
2,3,5-Trimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
2,6-Dimethylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
2-Methylnaphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
Acenaphthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
Acenaphthylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
Anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
Benz[a]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
Benzo[a]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
Benzo[b]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
Benzo[e]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
Benzo[g,h,i]perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
Benzo[k]fluoranthene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
Biphenyl	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
Chrysene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
Dibenz[a,h]anthracene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
Dibenzo[a,l]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
Dibenzothiophene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23

PHYSIS Project ID: 1407003-379
Client: Eurofins Eaton Analytical
Project: RED-HLL Project # 38001111 Job # 380-38620-1

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-40138	24-Feb-23	05-Mar-23
Fluorene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
Indeno[1,2,3-cd]pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
Naphthalene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
Perylene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
Phenanthrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23
Pyrene	EPA 625.1	µg/L	ND	1	0.001	0.005	Total		O-40138	24-Feb-23	05-Mar-23

QUALITY CONTROL REPORT

ENVIRONMENTAL LABORATORIES, INC.

Innovative Solutions for Nature

Base/Neutral Extractable Compounds QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODEc
Sample ID: 104298-B1	**QAQC Procedural Blank**					**Matrix: BlankMatrix**		**Sampled:**					**Received:**	
		Method: EPA 625.1				Batch ID: O-40138		Prepared: 24-Feb-23					Analyzed: 04-Mar-23	
Disalicylidenepropanediamine	Total	ND	1	0.05	0.1	µg/L								
Sample ID: 104298-BS1	**QAQC Procedural Blank**					**Matrix: BlankMatrix**		**Sampled:**					**Received:**	
		Method: EPA 625.1				Batch ID: O-40138		Prepared: 24-Feb-23					Analyzed: 04-Mar-23	
Disalicylidenepropanediamine	Total	43.7	1	0.05	0.1	µg/L	50	0	87	50 - 150%	PASS			
Sample ID: 104298-BS2	**QAQC Procedural Blank**					**Matrix: BlankMatrix**		**Sampled:**					**Received:**	
		Method: EPA 625.1				Batch ID: O-40138		Prepared: 24-Feb-23					Analyzed: 04-Mar-23	
Disalicylidenepropanediamine	Total	49.2	1	0.05	0.1	µg/L	50	0	98	50 - 150%	PASS	12	30 PASS	

Polynuclear Aromatic Hydrocarbons QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS	QA CODEc
Sample ID: 104298-B1	**QAQC Procedural Blank**					**Matrix: BlankMatrix**		**Sampled:**				**Received:**	
	Method: EPA 625.1					Batch ID: O-40138		Prepared: 24-Feb-23				Analyzed: 04-Mar-23	
(d10-Acenaphthene)	Total	85	1			% Recovery	100	85	27 - 133%	PASS			
(d10-Phenanthrene)	Total	86	1			% Recovery	100	86	43 - 129%	PASS			
(d12-Chrysene)	Total	85	1			% Recovery	100	85	52 - 144%	PASS			
(d12-Perylene)	Total	83	1			% Recovery	100	83	36 - 161%	PASS			
(d8-Naphthalene)	Total	78	1			% Recovery	100	78	25 - 125%	PASS			
1-Methylnaphthalene	Total	ND	1	0.001	0.005	µg/L							
1-Methylphenanthrene	Total	ND	1	0.001	0.005	µg/L							
2,3,5-Trimethylnaphthalene	Total	ND	1	0.001	0.005	µg/L							
2,6-Dimethylnaphthalene	Total	ND	1	0.001	0.005	µg/L							
2-Methylnaphthalene	Total	ND	1	0.001	0.005	µg/L							
Acenaphthene	Total	ND	1	0.001	0.005	µg/L							
Acenaphthylene	Total	ND	1	0.001	0.005	µg/L							
Anthracene	Total	ND	1	0.001	0.005	µg/L							
Benz[a]anthracene	Total	ND	1	0.001	0.005	µg/L							
Benzo[a]pyrene	Total	ND	1	0.001	0.005	µg/L							
Benzo[b]fluoranthene	Total	ND	1	0.001	0.005	µg/L							
Benzo[e]pyrene	Total	ND	1	0.001	0.005	µg/L							
Benzo[g,h,i]perylene	Total	ND	1	0.001	0.005	µg/L							
Benzo[k]fluoranthene	Total	ND	1	0.001	0.005	µg/L							
Biphenyl	Total	ND	1	0.001	0.005	µg/L							
Chrysene	Total	ND	1	0.001	0.005	µg/L							
Dibenz[a,h]anthracene	Total	ND	1	0.001	0.005	µg/L							
Dibenzo[a,l]pyrene	Total	ND	1	0.001	0.005	µg/L							

Polynuclear Aromatic Hydrocarbons QUALITY CONTROL REPORT

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

Polynuclear Aromatic Hydrocarbons QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS	PRECISION %	PRECISION LIMITS	QA CODEc
Sample ID: 104298-BS1	**QAQC Procedural Blank**					**Matrix: BlankMatrix**		**Sampled:**				**Received:**	
		Method: EPA 625.1				Batch ID: O-40138		Prepared: 24-Feb-23				Analyzed: 04-Mar-23	
(d10-Acenaphthene)	Total	88	1			% Recovery	100	0	88	27 - 133%	PASS		
(d10-Phenanthrene)	Total	89	1			% Recovery	100	0	89	43 - 129%	PASS		
(d12-Chrysene)	Total	83	1			% Recovery	100	0	83	52 - 144%	PASS		
(d12-Perylene)	Total	89	1			% Recovery	100	0	89	36 - 161%	PASS		
(d8-Naphthalene)	Total	82	1			% Recovery	100	0	82	25 - 125%	PASS		
1-Methylnaphthalene	Total	0.413	1	0.001	0.005	µg/L	0.5	0	83	31 - 128%	PASS		
1-Methylphenanthrene	Total	0.436	1	0.001	0.005	µg/L	0.5	0	87	66 - 127%	PASS		
2,3,5-Trimethylnaphthalene	Total	0.429	1	0.001	0.005	µg/L	0.5	0	86	55 - 122%	PASS		
2,6-Dimethylnaphthalene	Total	0.423	1	0.001	0.005	µg/L	0.5	0	85	48 - 120%	PASS		
2-Methylnaphthalene	Total	0.407	1	0.001	0.005	µg/L	0.5	0	81	47 - 130%	PASS		
Acenaphthene	Total	0.421	1	0.001	0.005	µg/L	0.5	0	84	53 - 131%	PASS		
Acenaphthylene	Total	0.418	1	0.001	0.005	µg/L	0.5	0	84	43 - 140%	PASS		
Anthracene	Total	0.429	1	0.001	0.005	µg/L	0.5	0	86	58 - 135%	PASS		
Benz[a]anthracene	Total	0.408	1	0.001	0.005	µg/L	0.5	0	82	55 - 145%	PASS		
Benzo[a]pyrene	Total	0.406	1	0.001	0.005	µg/L	0.5	0	81	51 - 143%	PASS		
Benzo[b]fluoranthene	Total	0.444	1	0.001	0.005	µg/L	0.5	0	89	46 - 165%	PASS		
Benzo[e]pyrene	Total	0.432	1	0.001	0.005	µg/L	0.5	0	86	42 - 152%	PASS		
Benzo[g,h,i]perylene	Total	0.434	1	0.001	0.005	µg/L	0.5	0	87	63 - 133%	PASS		
Benzo[k]fluoranthene	Total	0.429	1	0.001	0.005	µg/L	0.5	0	86	56 - 145%	PASS		
Biphenyl	Total	0.417	1	0.001	0.005	µg/L	0.5	0	83	56 - 119%	PASS		
Chrysene	Total	0.405	1	0.001	0.005	µg/L	0.5	0	81	56 - 141%	PASS		
Dibenz[a,h]anthracene	Total	0.521	1	0.001	0.005	µg/L	0.5	0	104	55 - 150%	PASS		
Dibenzo[a,l]pyrene	Total	0.42	1	0.001	0.005	µg/L	0.5	0	84	50 - 150%	PASS		

Polynuclear Aromatic Hydrocarbons QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODEc
Dibenzothiophene	Total	0.428	1	0.001	0.005	µg/L	0.5	0	86	46 - 126%	PASS			
Fluoranthene	Total	0.433	1	0.001	0.005	µg/L	0.5	0	87	60 - 146%	PASS			
Fluorene	Total	0.428	1	0.001	0.005	µg/L	0.5	0	86	58 - 131%	PASS			
Indeno[1,2,3-cd]pyrene	Total	0.466	1	0.001	0.005	µg/L	0.5	0	93	50 - 151%	PASS			
Naphthalene	Total	0.399	1	0.001	0.005	µg/L	0.5	0	80	41 - 126%	PASS			
Perylene	Total	0.407	1	0.001	0.005	µg/L	0.5	0	81	48 - 141%	PASS			
Phenanthrene	Total	0.43	1	0.001	0.005	µg/L	0.5	0	86	67 - 127%	PASS			
Pyrene	Total	0.434	1	0.001	0.005	µg/L	0.5	0	87	54 - 156%	PASS			

Polynuclear Aromatic Hydrocarbons QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODEc
Sample ID: 104298-BS2	**QAQC Procedural Blank**					**Matrix: BlankMatrix**		**Sampled:**				**Received:**		
	Method: EPA 625.1					Batch ID: O-40138		Prepared: 24-Feb-23				Analyzed: 04-Mar-23		
(d10-Acenaphthene)	Total	84	1			% Recovery	100	0	84	27 - 133%	PASS	5	30	PASS
(d10-Phenanthrene)	Total	86	1			% Recovery	100	0	86	43 - 129%	PASS	3	30	PASS
(d12-Chrysene)	Total	81	1			% Recovery	100	0	81	52 - 144%	PASS	2	30	PASS
(d12-Perylene)	Total	84	1			% Recovery	100	0	84	36 - 161%	PASS	6	30	PASS
(d8-Naphthalene)	Total	78	1			% Recovery	100	0	78	25 - 125%	PASS	5	30	PASS
1-Methylnaphthalene	Total	0.386	1	0.001	0.005	µg/L	0.5	0	77	31 - 128%	PASS	8	30	PASS
1-Methylphenanthrene	Total	0.42	1	0.001	0.005	µg/L	0.5	0	84	66 - 127%	PASS	4	30	PASS
2,3,5-Trimethylnaphthalene	Total	0.405	1	0.001	0.005	µg/L	0.5	0	81	55 - 122%	PASS	6	30	PASS
2,6-Dimethylnaphthalene	Total	0.391	1	0.001	0.005	µg/L	0.5	0	78	48 - 120%	PASS	9	30	PASS
2-Methylnaphthalene	Total	0.384	1	0.001	0.005	µg/L	0.5	0	77	47 - 130%	PASS	5	30	PASS
Acenaphthene	Total	0.405	1	0.001	0.005	µg/L	0.5	0	81	53 - 131%	PASS	4	30	PASS
Acenaphthylene	Total	0.397	1	0.001	0.005	µg/L	0.5	0	79	43 - 140%	PASS	6	30	PASS
Anthracene	Total	0.417	1	0.001	0.005	µg/L	0.5	0	83	58 - 135%	PASS	4	30	PASS
Benz[a]anthracene	Total	0.397	1	0.001	0.005	µg/L	0.5	0	79	55 - 145%	PASS	4	30	PASS
Benzo[a]pyrene	Total	0.402	1	0.001	0.005	µg/L	0.5	0	80	51 - 143%	PASS	1	30	PASS
Benzo[b]fluoranthene	Total	0.43	1	0.001	0.005	µg/L	0.5	0	86	46 - 165%	PASS	3	30	PASS
Benzo[e]pyrene	Total	0.41	1	0.001	0.005	µg/L	0.5	0	82	42 - 152%	PASS	5	30	PASS
Benzo[g,h,i]perylene	Total	0.419	1	0.001	0.005	µg/L	0.5	0	84	63 - 133%	PASS	4	30	PASS
Benzo[k]fluoranthene	Total	0.399	1	0.001	0.005	µg/L	0.5	0	80	56 - 145%	PASS	7	30	PASS
Biphenyl	Total	0.395	1	0.001	0.005	µg/L	0.5	0	79	56 - 119%	PASS	5	30	PASS
Chrysene	Total	0.381	1	0.001	0.005	µg/L	0.5	0	76	56 - 141%	PASS	6	30	PASS
Dibenz[a,h]anthracene	Total	0.49	1	0.001	0.005	µg/L	0.5	0	98	55 - 150%	PASS	6	30	PASS
Dibenzo[a,l]pyrene	Total	0.417	1	0.001	0.005	µg/L	0.5	0	83	50 - 150%	PASS	1	30	PASS

PHYSIS Project ID: 1407003-379
Client: Eurofins Eaton Analytical
Project: RED-HLL Project # 38001111 Job # 380-38620-1

Polynuclear Aromatic Hydrocarbons QUALITY CONTROL REPORT

ANALYTE	FRACTION	RESULT	DF	MDL	RL	UNITS	SPIKE LEVEL	SOURCE RESULT	ACCURACY %	ACCURACY LIMITS		PRECISION %	PRECISION LIMITS	QA CODEc
Dibenzothiophene	Total	0.412	1	0.001	0.005	µg/L	0.5	0	82	46 - 126%	PASS	5	30	PASS
Fluoranthene	Total	0.42	1	0.001	0.005	µg/L	0.5	0	84	60 - 146%	PASS	4	30	PASS
Fluorene	Total	0.413	1	0.001	0.005	µg/L	0.5	0	83	58 - 131%	PASS	4	30	PASS
Indeno[1,2,3-cd]pyrene	Total	0.44	1	0.001	0.005	µg/L	0.5	0	88	50 - 151%	PASS	6	30	PASS
Naphthalene	Total	0.375	1	0.001	0.005	µg/L	0.5	0	75	41 - 126%	PASS	6	30	PASS
Perylene	Total	0.376	1	0.001	0.005	µg/L	0.5	0	75	48 - 141%	PASS	8	30	PASS
Phenanthrene	Total	0.419	1	0.001	0.005	µg/L	0.5	0	84	67 - 127%	PASS	2	30	PASS
Pyrene	Total	0.415	1	0.001	0.005	µg/L	0.5	0	83	54 - 156%	PASS	5	30	PASS

TENTATIVELY IDENTIFIED COMPOUNDS

Sample ID: Lab Blank B1_40138

Retention Time	Area (% of total)	Concentration (ng/L)	Library/ID	Cas Number	Match Quality (%)
35.7677	5.1274	1111	Anthracene-D10-	1719-06-8	95
10.7679	3.2625	707	Oxalic acid, cyclohexyl pentyl ester	1000309-30-6	88
10.1685	2.1518	466	Cyclopentene, 1,2,3,4,5-pentamethyl-	1000154-28-6	90
10.5756	1.7403	377	Cyclohexane, 1-methyl-2-propyl-	4291-79-6	91
10.1368	1.3649	296	Cyclopentane, 1,2,3,4,5-pentamethyl-	1000152-79-7	87
10.5171	0.6403	139	Octane, 3-methyl-6-methylene-	74630-07-2	82
10.5171	0.5644	122	Pyrrolidine	123-75-1	82
11.1414	0.5301	115	1,5-Heptadien-4-one, 3,3,6-trimethyl-	546-49-6	86
11.1414	0.5131	111	Oxalic acid, cyclohexyl isobutyl ester	1000309-30-4	87

Concentration estimated using the response for Anthracene-d10

Sample ID: 104299

Retention Time	Area (% of total)	Concentration (ng/L)	Library/ID	Cas Number	Match Quality (%)
35.7668	5.2135	1111	Anthracene-D10-	1719-06-8	94
10.7674	3.0543	651	Cyclobutanecarboxylic acid, 2-propenyl ester	1000282-60-3	86
10.1672	0.9799	209	Cyclopentene, 1,2,3,4,5-pentamethyl-	1000154-28-6	90
10.5744	0.6058	129	Cyclohexane, 1-methyl-2-propyl-	4291-79-6	87
10.5210	0.5827	124	5-Oxotetrahydrofuran-2-carboxylic acid	4344-84-7	83
10.5216	0.5698	121	Hydroperoxide, 1-methylpentyl	24254-55-5	81
11.1409	0.5212	111	1,5-Heptadien-4-one, 3,3,6-trimethyl-	546-49-6	88

Concentration estimated using the response for Anthracene-d10

Sample ID: 104300

Retention Time	Area (% of total)	Concentration (ng/L)	Library/ID	Cas Number	Match Quality (%)
35.7652	6.4157	1111	Anthracene-D10-	1517-22-2	93
10.7681	4.1364	716	Cyclobutanecarboxylic acid, 2-propenyl ester	1000282-60-3	86
10.1676	1.2107	210	Cyclopentene, 1,2,3,4,5-pentamethyl-	1000154-28-6	90
10.5750	0.7654	133	Cyclohexane, 1-methyl-2-propyl-	4291-79-6	89
10.1368	0.6806	118	Cyclopentane, 1,2,3,4,5-pentamethyl-	1000152-79-7	87
10.5209	0.6782	117	4-Methyl-2-oxovaleric acid	816-66-0	81
13.8936	0.6306	109	Benzoic acid	65-85-0	96

Concentration estimated using the response for Anthracene-d10

Sample ID: 104301

Retention Time	Area (% of total)	Concentration (ng/L)	Library/ID	Cas Number	Match Quality (%)
35.7649	5.5103	1111	Anthracene-D10-	1517-22-2	93
10.7659	3.1381	633	Oxalic acid, cyclohexyl pentyl ester	1000309-30-6	89
10.1679	0.9413	190	Cyclopentene, 1,2,3,4,5-pentamethyl-	1000154-28-6	90
10.1363	0.6862	138	Cyclopentane, 1,2,3,4,5-pentamethyl-	1000152-79-7	85
10.5744	0.5945	120	Cyclohexane, 1-methyl-2-propyl-	4291-79-6	89
10.5195	0.5616	113	Hydroperoxide, 1-methylpentyl	24254-55-5	84

Concentration estimated using the response for Anthracene-d10

CHAIN OF CUSTODY

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

Chain of Custody Record

eurofins | Environment Testing

6/19/2023

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arada, Rachelle	Carrier Tracking No(s):	COC No: 380-40569.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Rachelle.Arada@et.eurofinsus.com	State of Origin: Hawaii	Page: Page 1 of 1
Company: Physis Environmental Laboratories		Accreditations Required (See note): State - Hawaii		Job #: 380-38620-1
Address: 1904 Wright Circle, ,	Due Date Requested: 3/9/2023			
City: Anaheim	TAT Requested (days):			
State, Zip: CA, 92806				
Phone:	PO #:			
Email:	WO #:			
Project Name: RED-HILL	Project #: 38001111			
Site: Honolulu BWS Sites	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)
Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUB (625 PAH Physis LL (EAL) + TICs)/ 625 PAH Physis LL (EAL) + TICs	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
AIEA WELLS PUMPS 1&2 P2 (260) (331-203-TP400) (380-38620	2/21/23	10:17 Hawaiian		Water			X	2	See Attached Instructions
AIEA GULCH WELLS PUMP 2 (331-202-TP072) (380-38620-2)	2/21/23	10:40 Hawaiian		Water			X	2	See Attached Instructions
HALAWA WELLS UNITS 1 & 2 P1 (331-206-TP065) (380-38620-	2/21/23	09:48 Hawaiian		Water			X	2	See Attached Instructions

Note: Since laboratory accreditations are subject to change, Eurofins Eaton Analytical, LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/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	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	2-24-23 1010	~~DCS~~	[signature]	2-24-23 10:12	DCS
2	[signature]	2-24-23 11:37	DCS	[signature]	2/24/23 1137	physis
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 06/08/2021

PHYSIS
TERRA FAUNA FLORA AQUA AURA
ENVIRONMENTAL LABORATORIES, INC.
Innovative Solutions for Nature

Sample Receipt Summary

PHYSIS ENVIRONMENTAL LABORATORIES, INC.

Project Iteration ID: 1407003-379
Client Name: Eurofins Eaton Analytical
Project Name: RED-HLL Project # 38001111 Job # 380-38620-1
COC Page Number: 2 of 2
Bottle Label Color: NA

Receiving Info

1. Initials Received By: RGH
2. Date Received: 2/24/23
3. Time Received: 1137
4. Client Name: Eurofins
5. Courier Information: (Please circle)
   - Client • UPS • Area Fast • ~~DRS~~ DCS
   - FedEx • GSO/GLS • Ontrac • PAMS
   - PHYSIS Driver:
     - i. Start Time:_____
     - ii. End Time:_____
     - iii. Total Mileage: _____
     - iv. Number of Pickups:_____
6. Container Information: (Please put the # of containers or circle none)
   - 1 Cooler • __ Styrofoam Cooler • ____ Boxes • None
   - ___ Carboy(s) • __Carboy Trash Can(s) • ____ Carboy Cap(s) • Other _____
7. What ~~type of~~ ice was used: (Please circle any that apply)
   - (Wet Ice) • Blue Ice • Dry Ice • Water • None
8. Randomly Selected Samples Temperature (°C): 3.6 Used I/R Thermometer # 1-2

Inspection Info

1. Initials Inspected By: RGH

Sample Integrity Upon Receipt:

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

Notes:

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

Chain of Custody Record

eurofins | Environment Testing

Client Information	Sampler: BAILEY	Lab PM: Arada, Rachelle	Carrier Tracking No(s):	COC No: 380-9775-2757.1
Client Contact: Dr. Ron Fenstemacher	Phone: 808-748-5840	E-Mail: Rachelle.Arada@et.eurofinsus.com	State of Origin:	Page: Page 1 of 3
Company: City & County of Honolulu	PWSID:			Job #:
Address: 630 South Beretania Street Chemistry Lab	Due Date Requested:			
City: Honolulu	TAT Requested (days):			
State, Zip: HI, 96843	Compliance Project: Δ Yes Δ No			
Phone: 808-748-5091(Tel)	PO #: C20525101 exp 05312023			
Email: RFENSTEMACHER@hbws.org	WO #:			
Project Name: RED-HILL/HBWS Sites Event Desc: RUSH Weekly Red Hill	Project #: 38001111			
Site: Hawaii	SSOW#:			

Analysis Requested

380-38620 COC

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUBCONTRACT - 625 PAH Physis LL (EAL) + TICs	SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)	SUBCONTRACT - 8015 Diesel LL (EAL) and Motor Oil	525.2_PREC - (MOD) 525plus Plus TICs	SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)	537.1_DW_PREC - 537.1 Full List	533 - All Analytes	Total Number of containers	Special Instructions/Note:
			Preservation Code:				R	R	RA		RA	Y	N		
MOANALUA WELLS				Water											
AIEA GULCH WELLS PUMP 2				Water											(752A) 2.2/2.1
AIEA WELLS PUMPS 1&2 (260) PZ	2/21/2023	1017	G	Water			X	X	X	X	X	X	X		FedEx: 771379907275
HALAWA WELLS UNITS 1&2				Water											
MOANALUA WELLS				Water											(752A) 2.4/2.3
AIEA GULCH WELLS PUMP 2				Water											FedEx: 771379906224
AIEA WELLS PUMPS 1&2 (260)				Water											
HALAWA WELLS UNITS 1&2				Water											
MOANALUA WELLS				Water											
AIEA GULCH WELLS PUMP 2	02/21/2023	1040	G	Water			X	X	X	X	X	X	X		
AIEA WELLS PUMPS 1&2 (260)				Water											

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

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

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

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment: FedEx: 771379906945
Relinquished by: BAILEY	Date/Time: 02/22/2023 1400	Company: HBWS	Received by: Mark Urrutia
Relinquished by:	Date/Time:	Company:	Received by:
Relinquished by:	Date/Time:	Company:	Received by:

Date/Time: 2/23/23 1030	Company: EEA
Date/Time:	Company:
Date/Time:	Company:

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: (752A) 2.7/2.6 gel-frozen

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

Chain of Custody Record

eurofins Environment Testing

Client Information	Sampler: BAILEY	Lab PM: Arada, Rachelle	Carrier Tracking No(s):	COC No: 380-9775-2757.2
Client Contact: Dr. Ron Fenstemacher	Phone: 808-748-5840	E-Mail: Rachelle.Arada@et.eurofinsus.com	State of Origin:	Page: Page 2 of 3
Company: City & County of Honolulu	PWSID:			Job #:
Address: 630 South Beretania Street Chemistry Lab	Due Date Requested:			
City: Honolulu	TAT Requested (days):			
State, Zip: HI, 96843	Compliance Project: Δ Yes Δ No			
Phone: 808-748-5091(Tel)	PO #: C20525101 exp 05312023			
Email: RFENSTEMACHER@hbws.org	WO #:			
Project Name: RED-HILL/HBWS Sites Event Desc: RUSH Weekly Red Hill	Project #: 38001111			
Site: Hawaii	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUBCONTRACT - 625 PAH Physis LL (EAL) + TICs	SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)	SUBCONTRACT - 8015 Diesel LL (EAL) and Motor Oil	525.2_PREC - (MOD) 525plus Plus TICs	SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)	537.1_DW_PREC - 537.1 Full List	533 - All Analytes	Total Number of containers	Special Instructions/Note:
			Preservation Code:				R	R	RA		RA	Y	N		
HALAWA WELLS UNITS 1&2				Water											
MOANALUA WELLS				Water											(752A) 2.2/2.1
AIEA GULCH WELLS PUMP 2				Water											FedEx: 771379907275
AIEA WELLS PUMPS 1&2 (260)				Water											
HALAWA WELLS UNITS 1&2 P1	2/21/2023	0948	G	Water			X	X	X	X	X	X	X		(752A) 2.4/2.3
TB MOANALUA WELLS				Water											FedEx: 771379906224
TB AIEA GULCH WELLS PUMP2	2/21/2023	1040		Water							X				
TB AIEA WELLS PUMPS 1&2 (260) P2	2/21/2023	1017		Water							X				
TB HALAWA WELLS UNITS 1&2 P1	2/21/2023	0948		Water							X				
MOANALUA WELLS				Water											
AIEA GULCH WELLS PUMP 2				Water											

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

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

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

Special Instructions/QC Requirements:

Empty Kit Relinquished by: | Date: | Time: | Method of Shipment: FedEx: 771379906945

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
BAILEY	02/22/2023 1400	HBWS	Mark Urcuilla	2/23/23 1030	EEA

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: (752A) 2.7/2.6 gel- frozen

Eurofins Drinking Water Testing Pomona
941 Corporate Center Drive
Pomona, CA 91768-2642
Phone: 626-386-1100

Chain of Custody Record

eurofins | Environment Testing

6/19/2023

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arada, Rachelle	Carrier Tracking No(s):	COC No: 380-40578.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Rachelle.Arada@et.eurofinsus.com	State of Origin: Hawaii	Page: Page 1 of 1
Company: Eurofins Eaton Analytical		Accreditations Required (See note): State - Hawaii		Job #: 380-38620-1
Address: 110 S Hill Street, ,	Due Date Requested: 3/15/2023			
City: South Bend	TAT Requested (days):			
State, Zip: IN, 46617				
Phone: 574-233-4777(Tel) 574-233-8207(Fax)	PO #:			
Email:	WO #:			
Project Name: RED-HILL	Project #: 38001111			
Site: Honolulu BWS Sites	SSOW#:			

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)

Other:

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	525.2_PREC/525.2_Prep (MOD) 525plus Plus TICs	533/533_Prep All Analytes	537.1_DW_PREC/537.1_DW_Prep 537.1 Full List	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
AIEA WELLS PUMPS 1&2 P2 (260) (331-203-TP400) (380-38620	2/21/23	10:17 Hawaiian		Water			X	X	X	6	
AIEA GULCH WELLS PUMP 2 (331-202-TP072) (380-38620-2)	2/21/23	10:40 Hawaiian		Water			X	X	X	6	
HALAWA WELLS UNITS 1 & 2 P1 (331-206-TP065) (380-38620-	2/21/23	09:48 Hawaiian		Water			X	X	X	6	
FB: AIEA WELLS PUMP PUMP 2 (380-38620-7)	2/21/23	10:40 Hawaiian		Water				X	X	2	
FB: AIEA WELLS PUMPS 1&2 (260) P2 (380-38620-8)	2/21/23	10:17 Hawaiian		Water				X	X	2	
FB HALAWA WELLS UNIT 1&2 P1 (380-38620-9)	2/21/23	09:48 Hawaiian		Water				X	X	2	

Initial Temp: -0.4, -0.8
Corrected Temp: 0.4, 0.0
IR Gun # 25 det

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*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by: G.REITMEIER	Date/Time: 06/24/2023 13:40	Company EEA	Received by: Penny Pebley Wright	Date/Time: 06/25/23 0900	Company EEA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.: Client Provided Sample Container	Cooler Temperature(s) °C and Other Remarks:

Ver: 06/08/2021

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

Chain of Custody Record

eurofins | Environment Testing

6/19/2023

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Arada, Rachelle	Carrier Tracking No(s):	COC No: 380-40574.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Rachelle.Arada@et.eurofinsus.com	State of Origin: Hawaii	Page: Page 1 of 1
Company: Eurofins Eaton Analytical		Accreditations Required (See note): State - Hawaii		Job #: 380-38620-1
Address: 110 S Hill Street, ,	Due Date Requested: 3/15/2023			
City: South Bend	TAT Requested (days):			
State, Zip: IN, 46617				
Phone: 574-233-4777(Tel) 574-233-8207(Fax)	PO #:			
Email:	WO #:			
Project Name: RED-HILL	Project #: 38001111			
Site: Honolulu BWS Sites	SSOW#:			

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Y - Trizma, Z - other (specify)

Other:

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	525.2_PREC/525.2_Prep (MOD) 525plus Plus TICs	533/533_Prep All Analytes	537.1_DW_PREC/537.1_DW_Prep 537.1 Full List	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
AIEA WELLS PUMPS 1&2 P2 (260) (331-203-TP400) (380-38620	2/21/23	10:17 Hawaiian		Water			X	X	X	2	
AIEA GULCH WELLS PUMP 2 (331-202-TP072) (380-38620-2)	2/21/23	10:40 Hawaiian		Water			X	X	X	2	
HALAWA WELLS UNITS 1 & 2 P1 (331-206-TP065) (380-38620-	2/21/23	09:48 Hawaiian		Water			X	X	X	2	

Initial Temp:
Received Temp:
IR Gun #

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*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by: G.REITNER	Date/Time: 02/24/2023 11:11	Company: EEA	Received by: Kerry Perkins Wright	Date/Time: 02/25/23 0900	Company: EEA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.: Client Provided Sample Container	Cooler Temperature(s) °C and Other Remarks:

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-38620-1

Login Number: 38620
List Number: 1
Creator: Sanchez Velasquez, Gustavo

List Source: Eurofins Eaton Analytical Pomona

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

Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-38620-1

Login Number: 38620
List Number: 2
Creator: Pehling-Wright, Penny

List Source: Eurofins Eaton Analytical South Bend
List Creation: 02/27/23 09:41 AM

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