

ANALYTICAL REPORT

PREPARED FOR

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JOB DESCRIPTION

HRS-340E - RED-HILL - INTERA

JOB NUMBER

380-81506-1

Eurofins Eaton Analytical Pomona

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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

Compliance Statement

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

Authorization



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Definitions/Glossary

Client: City & County of Honolulu
Project/Site: HRS-340E - RED-HILL - INTERA

Job ID: 380-81506-1

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.

Glossary

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

Case Narrative

Client: City & County of Honolulu
Project: HRS-340E - RED-HILL - INTERA

Job ID: 380-81506-1

Job ID: 380-81506-1

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Job Narrative 380-81506-1

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

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

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

Receipt

The sample was received on 2/1/2024 9:15 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 1.9°C.

PFAS

Method 1633_DOD5: The continuing calibration verifications (CCVs) associated with batch 320-741165 recovered above the upper control limit for Nonfluoro-3,6-dioxahexanoic acid (NFDHA). The sample(s) associated with these CCVs were non-detect for the affected analyte; therefore, the data have been reported. The associated samples are impacted: BWS2253-J1-AQ (380-81506-1), (CCV 320-741191/24) and (CCVIS 320-741165/13).

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

Detection Summary

Client: City & County of Honolulu
Project/Site: HRS-340E - RED-HILL - INTERA

Job ID: 380-81506-1

Client Sample ID: BWS2253-J1-AQ

Lab Sample ID: 380-81506-1

No Detections.

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

This Detection Summary does not include radiochemical test results.

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Client Sample Results

Client: City & County of Honolulu
 Project/Site: HRS-340E - RED-HILL - INTERA

Job ID: 380-81506-1

Client Sample ID: BWS2253-J1-AQ

Lab Sample ID: 380-81506-1

Date Collected: 01/31/24 10:45

Matrix: Water

Date Received: 02/01/24 09:15

Method: EPA Draft 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<7.2		7.2	ng/L		02/06/24 11:26	02/17/24 09:54	1
Perfluoropentanoic acid (PFPeA)	<3.6		3.6	ng/L		02/06/24 11:26	02/17/24 09:54	1
Perfluorohexanoic acid (PFHxA)	<1.8		1.8	ng/L		02/06/24 11:26	02/17/24 09:54	1
Perfluoroheptanoic acid (PFHpA)	<1.8		1.8	ng/L		02/06/24 11:26	02/17/24 09:54	1
Perfluorooctanoic acid (PFOA)	<1.8		1.8	ng/L		02/06/24 11:26	02/17/24 09:54	1
Perfluorononanoic acid (PFNA)	<1.8		1.8	ng/L		02/06/24 11:26	02/17/24 09:54	1
Perfluorodecanoic acid (PFDA)	<2.9		2.9	ng/L		02/06/24 11:26	02/17/24 09:54	1
Perfluoroundecanoic acid (PFUnA)	<1.8		1.8	ng/L		02/06/24 11:26	02/17/24 09:54	1
Perfluorododecanoic acid (PFDoA)	<1.8		1.8	ng/L		02/06/24 11:26	02/17/24 09:54	1
Perfluorotridecanoic acid (PFTrDA)	<1.8		1.8	ng/L		02/06/24 11:26	02/17/24 09:54	1
Perfluorotetradecanoic acid (PFTeDA)	<1.8		1.8	ng/L		02/06/24 11:26	02/17/24 09:54	1
Perfluorobutanesulfonic acid (PFBS)	<1.8		1.8	ng/L		02/06/24 11:26	02/17/24 09:54	1
Perfluoropentanesulfonic acid (PFPeS)	<1.8		1.8	ng/L		02/06/24 11:26	02/17/24 09:54	1
Perfluorohexanesulfonic acid (PFHxS)	<1.8		1.8	ng/L		02/06/24 11:26	02/17/24 09:54	1
Perfluoroheptanesulfonic acid (PFHpS)	<1.8		1.8	ng/L		02/06/24 11:26	02/17/24 09:54	1
Perfluorooctanesulfonic acid (PFOS)	<1.8		1.8	ng/L		02/06/24 11:26	02/17/24 09:54	1
Perfluorononanesulfonic acid (PFNS)	<1.8		1.8	ng/L		02/06/24 11:26	02/17/24 09:54	1
Perfluorododecanesulfonic acid (PFDoS)	<1.8		1.8	ng/L		02/06/24 11:26	02/17/24 09:54	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<7.2		7.2	ng/L		02/06/24 11:26	02/17/24 09:54	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<7.2		7.2	ng/L		02/06/24 11:26	02/17/24 09:54	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<7.2		7.2	ng/L		02/06/24 11:26	02/17/24 09:54	1
Perfluorooctanesulfonamide (PFOSA)	<1.8		1.8	ng/L		02/06/24 11:26	02/17/24 09:54	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	<1.8		1.8	ng/L		02/06/24 11:26	02/17/24 09:54	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	<1.8		1.8	ng/L		02/06/24 11:26	02/17/24 09:54	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<1.8		1.8	ng/L		02/06/24 11:26	02/17/24 09:54	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	<18		18	ng/L		02/06/24 11:26	02/17/24 09:54	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<7.2		7.2	ng/L		02/06/24 11:26	02/17/24 09:54	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<7.2		7.2	ng/L		02/06/24 11:26	02/17/24 09:54	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<3.6		3.6	ng/L		02/06/24 11:26	02/17/24 09:54	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<3.6		3.6	ng/L		02/06/24 11:26	02/17/24 09:54	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<3.6		3.6	ng/L		02/06/24 11:26	02/17/24 09:54	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	<7.2		7.2	ng/L		02/06/24 11:26	02/17/24 09:54	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	<7.2		7.2	ng/L		02/06/24 11:26	02/17/24 09:54	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<3.6		3.6	ng/L		02/06/24 11:26	02/17/24 09:54	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	<9.0		9.0	ng/L		02/06/24 11:26	02/17/24 09:54	1

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Client Sample Results

Client: City & County of Honolulu
 Project/Site: HRS-340E - RED-HILL - INTERA

Job ID: 380-81506-1

Client Sample ID: BWS2253-J1-AQ

Lab Sample ID: 380-81506-1

Date Collected: 01/31/24 10:45

Matrix: Water

Date Received: 02/01/24 09:15

Method: EPA Draft 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropentylpropanoic acid (5:3 FTCA)	<45		45	ng/L		02/06/24 11:26	02/17/24 09:54	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	<45		45	ng/L		02/06/24 11:26	02/17/24 09:54	1
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C4 PFBA	82.8		5 - 130			02/06/24 11:26	02/17/24 09:54	1
13C5 PFPeA	77.8		40 - 130			02/06/24 11:26	02/17/24 09:54	1
13C5 PFHxA	78.3		40 - 130			02/06/24 11:26	02/17/24 09:54	1
13C4 PFHpA	78.5		40 - 130			02/06/24 11:26	02/17/24 09:54	1
13C8 PFOA	86.8		40 - 130			02/06/24 11:26	02/17/24 09:54	1
13C9 PFNA	81.2		40 - 130			02/06/24 11:26	02/17/24 09:54	1
13C6 PFDA	78.6		40 - 130			02/06/24 11:26	02/17/24 09:54	1
13C7 PFUnA	81.2		30 - 130			02/06/24 11:26	02/17/24 09:54	1
13C2 PFDoA	67.5		10 - 130			02/06/24 11:26	02/17/24 09:54	1
13C2 PFTeDA	77.5		10 - 130			02/06/24 11:26	02/17/24 09:54	1
13C3 PFBS	98.8		40 - 135			02/06/24 11:26	02/17/24 09:54	1
13C3 PFHxS	81.8		40 - 130			02/06/24 11:26	02/17/24 09:54	1
13C8 PFOS	77.9		40 - 130			02/06/24 11:26	02/17/24 09:54	1
13C8 PFOSA	77.7		40 - 130			02/06/24 11:26	02/17/24 09:54	1
d3-NMeFOSAA	74.4		40 - 170			02/06/24 11:26	02/17/24 09:54	1
13C2 4:2 FTS	95.2		40 - 200			02/06/24 11:26	02/17/24 09:54	1
13C2 6:2 FTS	84.4		40 - 200			02/06/24 11:26	02/17/24 09:54	1
13C2 8:2 FTS	72.3		40 - 300			02/06/24 11:26	02/17/24 09:54	1
13C3 HFPO-DA	89.7		40 - 130			02/06/24 11:26	02/17/24 09:54	1
d9-N-EtFOSE-M	73.2		10 - 130			02/06/24 11:26	02/17/24 09:54	1
d5-NEtPFOSA	65.0		10 - 130			02/06/24 11:26	02/17/24 09:54	1
d3-NMePFOSA	59.9		10 - 130			02/06/24 11:26	02/17/24 09:54	1

Method: EPA Draft 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorodecanesulfonic acid (PFDS)	<1.8		1.8	ng/L		02/06/24 11:26	02/23/24 03:54	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<1.8		1.8	ng/L		02/06/24 11:26	02/23/24 03:54	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	<18		18	ng/L		02/06/24 11:26	02/23/24 03:54	1
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C8 PFOS	87.5		40 - 130			02/06/24 11:26	02/23/24 03:54	1
d5-NEtFOSAA	103		25 - 135			02/06/24 11:26	02/23/24 03:54	1
d7-N-MeFOSE-M	71.6		10 - 130			02/06/24 11:26	02/23/24 03:54	1

Isotope Dilution Summary

Client: City & County of Honolulu
 Project/Site: HRS-340E - RED-HILL - INTERA

Job ID: 380-81506-1

Method: Draft 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFBA (5-130)	PFPeA (40-130)	13C5PHA (40-130)	C4PFHA (40-130)	C8PFOA (40-130)	C9PFNA (40-130)	C6PFDA (40-130)	13C7PUA (30-130)
380-81506-1	BWS2253-J1-AQ	82.8	77.8	78.3	78.5	86.8	81.2	78.6	81.2
LCS 320-738660/3-A	Lab Control Sample	84.3	78.0	88.2	84.0	80.9	79.3	72.8	76.6
LLCS 320-738660/2-A	Lab Control Sample	81.7	81.9	86.0	80.2	83.1	75.7	83.0	89.0
MB 320-738660/1-A	Method Blank	86.4	88.1	83.9	86.4	86.0	86.0	80.6	88.5

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFDaA (10-130)	PFTDA (10-130)	C3PFBS (40-135)	C3PFHS (40-130)	C8PFOS (40-130)	PFOSA (40-130)	d3NMFOS (40-170)	M242FTS (40-200)
380-81506-1	BWS2253-J1-AQ	67.5	77.5	98.8	81.8	77.9	77.7	74.4	95.2
LCS 320-738660/3-A	Lab Control Sample	54.2	62.5	85.0	77.6	87.1	79.7	76.2	74.8
LLCS 320-738660/2-A	Lab Control Sample	68.6	70.6	87.1	75.6	80.6	76.3	75.5	73.3
MB 320-738660/1-A	Method Blank	64.0	76.2	93.8	83.8	88.8	81.2	83.4	80.3

		Percent Isotope Dilution Recovery (Acceptance Limits)					
Lab Sample ID	Client Sample ID	M262FTS (40-200)	M282FTS (40-300)	HFPODA (40-130)	NEFM (10-130)	d5NPFSA (10-130)	d3NMFSA (10-130)
380-81506-1	BWS2253-J1-AQ	84.4	72.3	89.7	73.2	65.0	59.9
LCS 320-738660/3-A	Lab Control Sample	67.9	60.7	84.7	89.3	83.3	74.6
LLCS 320-738660/2-A	Lab Control Sample	77.9	62.3	86.1	77.0	64.8	57.9
MB 320-738660/1-A	Method Blank	83.6	64.7	89.1	90.6	75.9	66.5

Surrogate Legend

- PFBA = 13C4 PFBA
- PFPeA = 13C5 PFPeA
- 13C5PHA = 13C5 PFHxA
- C4PFHA = 13C4 PFHpA
- C8PFOA = 13C8 PFOA
- C9PFNA = 13C9 PFNA
- C6PFDA = 13C6 PFDA
- 13C7PUA = 13C7 PFUnA
- PFDaA = 13C2 PFDaA
- PFTDA = 13C2 PFTeDA
- C3PFBS = 13C3 PFBS
- C3PFHS = 13C3 PFHxS
- C8PFOS = 13C8 PFOS
- PFOSA = 13C8 PFOSA
- d3NMFOS = d3-NMeFOSAA
- M242FTS = 13C2 4:2 FTS
- M262FTS = 13C2 6:2 FTS
- M282FTS = 13C2 8:2 FTS
- HFPODA = 13C3 HFPO-DA
- NEFM = d9-N-EtFOSE-M
- d5NPFSA = d5-NEtPFOSA
- d3NMFSA = d3-NMePFOSA

Method: Draft 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	C8PFOS (40-130)	d5NEFOS (25-135)	NMFM (10-130)
380-81506-1 - RA	BWS2253-J1-AQ	87.5	103	71.6

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Isotope Dilution Summary

Client: City & County of Honolulu
Project/Site: HRS-340E - RED-HILL - INTERA

Job ID: 380-81506-1

Method: Draft 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	C8PFOS (40-130)	d5NEFOS (25-135)	NMFM (10-130)
LLCS 320-738660/2-A - RA	Lab Control Sample	85.9	100	69.0

Surrogate Legend

C8PFOS = 13C8 PFOS
d5NEFOS = d5-NEtFOSAA
NMFM = d7-N-MeFOSE-M

Method: Draft 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	d5NEFOS (25-135)	NMFM (10-130)
LCS 320-738660/3-A - RA	Lab Control Sample	96.9	77.0
MB 320-738660/1-A - RA	Method Blank	97.9	77.9

Surrogate Legend

d5NEFOS = d5-NEtFOSAA
NMFM = d7-N-MeFOSE-M

QC Sample Results

Client: City & County of Honolulu
 Project/Site: HRS-340E - RED-HILL - INTERA

Job ID: 380-81506-1

Method: Draft 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS

Lab Sample ID: MB 320-738660/1-A
Matrix: Water
Analysis Batch: 741191

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 738660

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<8.0		8.0	ng/L		02/06/24 11:26	02/17/24 05:12	1
Perfluoropentanoic acid (PFPeA)	<4.0		4.0	ng/L		02/06/24 11:26	02/17/24 05:12	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		02/06/24 11:26	02/17/24 05:12	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		02/06/24 11:26	02/17/24 05:12	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		02/06/24 11:26	02/17/24 05:12	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		02/06/24 11:26	02/17/24 05:12	1
Perfluorodecanoic acid (PFDA)	<3.2		3.2	ng/L		02/06/24 11:26	02/17/24 05:12	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		02/06/24 11:26	02/17/24 05:12	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		02/06/24 11:26	02/17/24 05:12	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		02/06/24 11:26	02/17/24 05:12	1
Perfluorotetradecanoic acid (PFTeDA)	<2.0		2.0	ng/L		02/06/24 11:26	02/17/24 05:12	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		02/06/24 11:26	02/17/24 05:12	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		02/06/24 11:26	02/17/24 05:12	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		02/06/24 11:26	02/17/24 05:12	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		02/06/24 11:26	02/17/24 05:12	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		02/06/24 11:26	02/17/24 05:12	1
Perfluorononanesulfonic acid (PFNS)	<2.0		2.0	ng/L		02/06/24 11:26	02/17/24 05:12	1
Perfluorodecanesulfonic acid (PFDS)	<2.0		2.0	ng/L		02/06/24 11:26	02/17/24 05:12	1
Perfluorododecanesulfonic acid (PFDoS)	<2.0		2.0	ng/L		02/06/24 11:26	02/17/24 05:12	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<8.0		8.0	ng/L		02/06/24 11:26	02/17/24 05:12	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<8.0		8.0	ng/L		02/06/24 11:26	02/17/24 05:12	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<8.0		8.0	ng/L		02/06/24 11:26	02/17/24 05:12	1
Perfluorooctanesulfonamide (PFOSA)	<2.0		2.0	ng/L		02/06/24 11:26	02/17/24 05:12	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	<2.0		2.0	ng/L		02/06/24 11:26	02/17/24 05:12	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	<2.0		2.0	ng/L		02/06/24 11:26	02/17/24 05:12	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		02/06/24 11:26	02/17/24 05:12	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	<20		20	ng/L		02/06/24 11:26	02/17/24 05:12	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	<8.0		8.0	ng/L		02/06/24 11:26	02/17/24 05:12	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<8.0		8.0	ng/L		02/06/24 11:26	02/17/24 05:12	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<4.0		4.0	ng/L		02/06/24 11:26	02/17/24 05:12	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<4.0		4.0	ng/L		02/06/24 11:26	02/17/24 05:12	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<4.0		4.0	ng/L		02/06/24 11:26	02/17/24 05:12	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	<8.0		8.0	ng/L		02/06/24 11:26	02/17/24 05:12	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	<8.0		8.0	ng/L		02/06/24 11:26	02/17/24 05:12	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<4.0		4.0	ng/L		02/06/24 11:26	02/17/24 05:12	1

Eurofins Eaton Analytical Pomona

QC Sample Results

Client: City & County of Honolulu
 Project/Site: HRS-340E - RED-HILL - INTERA

Job ID: 380-81506-1

Method: Draft 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: MB 320-738660/1-A
Matrix: Water
Analysis Batch: 741191

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 738660

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid (3:3 FTCA)	<10		10	ng/L		02/06/24 11:26	02/17/24 05:12	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	<50		50	ng/L		02/06/24 11:26	02/17/24 05:12	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	<50		50	ng/L		02/06/24 11:26	02/17/24 05:12	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	86.4		5 - 130	02/06/24 11:26	02/17/24 05:12	1
13C5 PFPeA	88.1		40 - 130	02/06/24 11:26	02/17/24 05:12	1
13C5 PFHxA	83.9		40 - 130	02/06/24 11:26	02/17/24 05:12	1
13C4 PFHpA	86.4		40 - 130	02/06/24 11:26	02/17/24 05:12	1
13C8 PFOA	86.0		40 - 130	02/06/24 11:26	02/17/24 05:12	1
13C9 PFNA	86.0		40 - 130	02/06/24 11:26	02/17/24 05:12	1
13C6 PFDA	80.6		40 - 130	02/06/24 11:26	02/17/24 05:12	1
13C7 PFUnA	88.5		30 - 130	02/06/24 11:26	02/17/24 05:12	1
13C2 PFDoA	64.0		10 - 130	02/06/24 11:26	02/17/24 05:12	1
13C2 PFTeDA	76.2		10 - 130	02/06/24 11:26	02/17/24 05:12	1
13C3 PFBS	93.8		40 - 135	02/06/24 11:26	02/17/24 05:12	1
13C3 PFHxS	83.8		40 - 130	02/06/24 11:26	02/17/24 05:12	1
13C8 PFOS	88.8		40 - 130	02/06/24 11:26	02/17/24 05:12	1
13C8 PFOSA	81.2		40 - 130	02/06/24 11:26	02/17/24 05:12	1
d3-NMeFOSAA	83.4		40 - 170	02/06/24 11:26	02/17/24 05:12	1
13C2 4:2 FTS	80.3		40 - 200	02/06/24 11:26	02/17/24 05:12	1
13C2 6:2 FTS	83.6		40 - 200	02/06/24 11:26	02/17/24 05:12	1
13C2 8:2 FTS	64.7		40 - 300	02/06/24 11:26	02/17/24 05:12	1
13C3 HFPO-DA	89.1		40 - 130	02/06/24 11:26	02/17/24 05:12	1
d9-N-EtFOSE-M	90.6		10 - 130	02/06/24 11:26	02/17/24 05:12	1
d5-NEtPFOSA	75.9		10 - 130	02/06/24 11:26	02/17/24 05:12	1
d3-NMePFOSA	66.5		10 - 130	02/06/24 11:26	02/17/24 05:12	1

Lab Sample ID: LCS 320-738660/3-A
Matrix: Water
Analysis Batch: 741191

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 738660

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	128	119		ng/L		93	70 - 140
Perfluoropentanoic acid (PFPeA)	64.0	59.0		ng/L		92	65 - 135
Perfluorohexanoic acid (PFHxA)	32.0	25.1		ng/L		78	70 - 145
Perfluoroheptanoic acid (PFHpA)	32.0	25.4		ng/L		79	70 - 150
Perfluorooctanoic acid (PFOA)	32.0	26.1		ng/L		82	70 - 150
Perfluorononanoic acid (PFNA)	32.0	31.5		ng/L		98	70 - 150
Perfluorodecanoic acid (PFDA)	32.0	29.7		ng/L		93	70 - 140
Perfluoroundecanoic acid (PFUnA)	32.0	27.0		ng/L		84	70 - 145
Perfluorododecanoic acid (PFDoA)	32.0	35.2		ng/L		110	70 - 140
Perfluorotridecanoic acid (PFTTrDA)	32.0	32.3		ng/L		101	65 - 140
Perfluorotetradecanoic acid (PFTeDA)	32.0	28.1		ng/L		88	60 - 140

Eurofins Eaton Analytical Pomona

QC Sample Results

Client: City & County of Honolulu
 Project/Site: HRS-340E - RED-HILL - INTERA

Job ID: 380-81506-1

Method: Draft 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LCS 320-738660/3-A
Matrix: Water
Analysis Batch: 741191

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 738660

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanesulfonic acid (PFBS)	28.4	25.3		ng/L		89	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	30.1	25.9		ng/L		86	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	29.2	25.7		ng/L		88	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	30.5	29.9		ng/L		98	70 - 150
Perfluorooctanesulfonic acid (PFOS)	29.8	27.0		ng/L		91	55 - 150
Perfluorononanesulfonic acid (PFNS)	30.8	20.2		ng/L		66	65 - 145
Perfluorodecanesulfonic acid (PFDS)	30.8	20.3		ng/L		66	60 - 145
Perfluorododecanesulfonic acid (PFDoS)	31.0	20.5		ng/L		66	50 - 145
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	120	104		ng/L		87	70 - 145
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	122	109		ng/L		89	65 - 155
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	123	127		ng/L		103	60 - 150
Perfluorooctanesulfonamide (PFOSA)	32.0	32.0		ng/L		100	70 - 145
N-methylperfluorooctane sulfonamide (NMeFOSA)	32.0	30.6		ng/L		96	60 - 150
N-ethylperfluorooctane sulfonamide (NEtFOSA)	32.0	33.3		ng/L		104	65 - 145
N-methylperfluorooctanesulfonamide (NMeFOSAA)	32.0	32.7		ng/L		102	50 - 140
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	320	298		ng/L		93	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	128	122		ng/L		95	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	121	97.5		ng/L		80	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	64.0	63.8		ng/L		100	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	64.0	49.2		ng/L		77	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	64.0	56.6		ng/L		88	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	120	89.8		ng/L		75	70 - 155
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	121	87.1		ng/L		72	55 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	57.1	46.0		ng/L		81	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	160	148		ng/L		92	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	799	669		ng/L		84	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	799	665		ng/L		83	50 - 145

QC Sample Results

Client: City & County of Honolulu
 Project/Site: HRS-340E - RED-HILL - INTERA

Job ID: 380-81506-1

Method: Draft 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	84.3		5 - 130
13C5 PFPeA	78.0		40 - 130
13C5 PFHxA	88.2		40 - 130
13C4 PFHpA	84.0		40 - 130
13C8 PFOA	80.9		40 - 130
13C9 PFNA	79.3		40 - 130
13C6 PFDA	72.8		40 - 130
13C7 PFUnA	76.6		30 - 130
13C2 PFDoA	54.2		10 - 130
13C2 PFTeDA	62.5		10 - 130
13C3 PFBS	85.0		40 - 135
13C3 PFHxS	77.6		40 - 130
13C8 PFOS	87.1		40 - 130
13C8 PFOSA	79.7		40 - 130
d3-NMeFOSAA	76.2		40 - 170
13C2 4:2 FTS	74.8		40 - 200
13C2 6:2 FTS	67.9		40 - 200
13C2 8:2 FTS	60.7		40 - 300
13C3 HFPO-DA	84.7		40 - 130
d9-N-EtFOSE-M	89.3		10 - 130
d5-NEtPFOSA	83.3		10 - 130
d3-NMePFOSA	74.6		10 - 130

Lab Sample ID: LLCS 320-738660/2-A
Matrix: Water
Analysis Batch: 741191

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 738660

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec
							Limits
Perfluorobutanoic acid (PFBA)	12.8	11.8		ng/L		92	70 - 140
Perfluoropentanoic acid (PFPeA)	6.40	5.84		ng/L		91	65 - 135
Perfluorohexanoic acid (PFHxA)	3.20	2.47		ng/L		77	70 - 145
Perfluoroheptanoic acid (PFHpA)	3.20	3.09		ng/L		97	70 - 150
Perfluorooctanoic acid (PFOA)	3.20	2.84		ng/L		89	70 - 150
Perfluorononanoic acid (PFNA)	3.20	3.19		ng/L		100	70 - 150
Perfluorodecanoic acid (PFDA)	3.20	2.40	J	ng/L		75	70 - 140
Perfluoroundecanoic acid (PFUnA)	3.20	2.87		ng/L		90	70 - 145
Perfluorododecanoic acid (PFDoA)	3.20	3.36		ng/L		105	70 - 140
Perfluorotridecanoic acid (PFTTrDA)	3.20	2.82		ng/L		88	65 - 140
Perfluorotetradecanoic acid (PFTeDA)	3.20	2.50		ng/L		78	60 - 140
Perfluorobutanesulfonic acid (PFBS)	2.84	2.26		ng/L		80	60 - 145
Perfluoropentanesulfonic acid (PFPeS)	3.01	2.72		ng/L		91	65 - 140
Perfluorohexanesulfonic acid (PFHxS)	2.92	2.59		ng/L		89	65 - 145
Perfluoroheptanesulfonic acid (PFHpS)	3.05	2.96		ng/L		97	70 - 150
Perfluorooctanesulfonic acid (PFOS)	2.98	3.24		ng/L		109	55 - 150

QC Sample Results

Client: City & County of Honolulu
 Project/Site: HRS-340E - RED-HILL - INTERA

Job ID: 380-81506-1

Method: Draft 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LLCS 320-738660/2-A
Matrix: Water
Analysis Batch: 741191

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 738660

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorononanesulfonic acid (PFNS)	3.08	2.18		ng/L		71	65 - 145
Perfluorododecanesulfonic acid (PFDoS)	3.10	1.71	J	ng/L		55	50 - 145
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	12.0	10.9		ng/L		91	70 - 145
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	12.2	11.3		ng/L		93	65 - 155
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	12.3	12.5		ng/L		102	60 - 150
Perfluorooctanesulfonamide (PFOSA)	3.20	3.04		ng/L		95	70 - 145
N-methylperfluorooctane sulfonamide (NMeFOSA)	3.20	2.65		ng/L		83	60 - 150
N-ethylperfluorooctane sulfonamide (NEtFOSA)	3.20	2.91		ng/L		91	65 - 145
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	3.20	2.95		ng/L		92	50 - 140
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	32.0	29.3		ng/L		92	70 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	12.8	12.5		ng/L		97	70 - 140
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	12.1	10.2		ng/L		84	65 - 145
Perfluoro-3-methoxypropanoic acid (PFMPA)	6.40	6.13		ng/L		96	55 - 140
Perfluoro-4-methoxybutanoic acid (PFMBA)	6.40	4.31		ng/L		67	60 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	6.40	6.28		ng/L		98	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid	12.0	9.59		ng/L		80	70 - 155
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	12.1	9.43		ng/L		78	55 - 160
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	5.71	4.57		ng/L		80	70 - 140
3-Perfluoropropylpropanoic acid (3:3 FTCA)	16.0	14.7		ng/L		92	65 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	79.9	70.3		ng/L		88	70 - 135
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	79.9	70.8		ng/L		89	50 - 145

Isotope Dilution	LLCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	81.7		5 - 130
13C5 PFPeA	81.9		40 - 130
13C5 PFHxA	86.0		40 - 130
13C4 PFHpA	80.2		40 - 130
13C8 PFOA	83.1		40 - 130
13C9 PFNA	75.7		40 - 130
13C6 PFDA	83.0		40 - 130
13C7 PFUnA	89.0		30 - 130
13C2 PFDoA	68.6		10 - 130
13C2 PFTeDA	70.6		10 - 130

Eurofins Eaton Analytical Pomona

QC Sample Results

Client: City & County of Honolulu
Project/Site: HRS-340E - RED-HILL - INTERA

Job ID: 380-81506-1

Method: Draft 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS (Continued)

Lab Sample ID: LLCS 320-738660/2-A
Matrix: Water
Analysis Batch: 741191

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 738660

Isotope Dilution	LLCS LLCS		Limits
	%Recovery	Qualifier	
13C3 PFBS	87.1		40 - 135
13C3 PFHxS	75.6		40 - 130
13C8 PFOS	80.6		40 - 130
13C8 PFOSA	76.3		40 - 130
d3-NMeFOSAA	75.5		40 - 170
13C2 4:2 FTS	73.3		40 - 200
13C2 6:2 FTS	77.9		40 - 200
13C2 8:2 FTS	62.3		40 - 300
13C3 HFPO-DA	86.1		40 - 130
d9-N-EtFOSE-M	77.0		10 - 130
d5-NEtPFOSA	64.8		10 - 130
d3-NMePFOSA	57.9		10 - 130

Method: Draft 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA

Lab Sample ID: MB 320-738660/1-A
Matrix: Water
Analysis Batch: 742048

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 738660

Analyte	MB MB		RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA) - RA	<2.0		2.0	ng/L		02/06/24 11:26	02/23/24 00:23	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE) - RA	<20		20	ng/L		02/06/24 11:26	02/23/24 00:23	1

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
d5-NEtFOSAA - RA	97.9		25 - 135	02/06/24 11:26	02/23/24 00:23	1
d7-N-MeFOSE-M - RA	77.9		10 - 130	02/06/24 11:26	02/23/24 00:23	1

Lab Sample ID: LCS 320-738660/3-A
Matrix: Water
Analysis Batch: 742048

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 738660

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA) - RA	32.0	28.9		ng/L		90	70 - 145
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE) - RA	320	300		ng/L		94	70 - 145

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
d5-NEtFOSAA - RA	96.9		25 - 135
d7-N-MeFOSE-M - RA	77.0		10 - 130

Lab Sample ID: LLCS 320-738660/2-A
Matrix: Water
Analysis Batch: 742048

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 738660

Analyte	Spike Added	LLCS LLCS		Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Perfluorodecanesulfonic acid (PFDS) - RA	3.08	1.97	J	ng/L		64	60 - 145

Eurofins Eaton Analytical Pomona

QC Sample Results

Client: City & County of Honolulu
 Project/Site: HRS-340E - RED-HILL - INTERA

Job ID: 380-81506-1

Method: Draft 1633 - Per- and Polyfluoroalkyl Substances by LC/MS/MS - RA (Continued)

Lab Sample ID: LLCS 320-738660/2-A
Matrix: Water
Analysis Batch: 742048

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 738660

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
N-ethylperfluorooctanesulfonamide acetic acid (NEtFOSAA) - RA	3.20	2.73		ng/L		85	70 - 145
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE) - RA	32.0	27.7		ng/L		87	70 - 145
Isotope Dilution		LLCS %Recovery	LLCS Qualifier				Limits
<i>13C8 PFOS - RA</i>		<i>85.9</i>					<i>40 - 130</i>
<i>d5-NEtFOSAA - RA</i>		<i>100</i>					<i>25 - 135</i>
<i>d7-N-MeFOSE-M - RA</i>		<i>69.0</i>					<i>10 - 130</i>



QC Association Summary

Client: City & County of Honolulu
 Project/Site: HRS-340E - RED-HILL - INTERA

Job ID: 380-81506-1

LCMS

Prep Batch: 738660

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-81506-1 - RA	BWS2253-J1-AQ	Total/NA	Water	1633	
380-81506-1	BWS2253-J1-AQ	Total/NA	Water	1633	
MB 320-738660/1-A - RA	Method Blank	Total/NA	Water	1633	
MB 320-738660/1-A	Method Blank	Total/NA	Water	1633	
LCS 320-738660/3-A - RA	Lab Control Sample	Total/NA	Water	1633	
LCS 320-738660/3-A	Lab Control Sample	Total/NA	Water	1633	
LLCS 320-738660/2-A - RA	Lab Control Sample	Total/NA	Water	1633	
LLCS 320-738660/2-A	Lab Control Sample	Total/NA	Water	1633	

Analysis Batch: 741191

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-81506-1	BWS2253-J1-AQ	Total/NA	Water	Draft 1633	738660
MB 320-738660/1-A	Method Blank	Total/NA	Water	Draft 1633	738660
LCS 320-738660/3-A	Lab Control Sample	Total/NA	Water	Draft 1633	738660
LLCS 320-738660/2-A	Lab Control Sample	Total/NA	Water	Draft 1633	738660

Analysis Batch: 742048

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-81506-1 - RA	BWS2253-J1-AQ	Total/NA	Water	Draft 1633	738660
MB 320-738660/1-A - RA	Method Blank	Total/NA	Water	Draft 1633	738660
LCS 320-738660/3-A - RA	Lab Control Sample	Total/NA	Water	Draft 1633	738660
LLCS 320-738660/2-A - RA	Lab Control Sample	Total/NA	Water	Draft 1633	738660

Lab Chronicle

Client: City & County of Honolulu
Project/Site: HRS-340E - RED-HILL - INTERA

Job ID: 380-81506-1

Client Sample ID: BWS2253-J1-AQ

Lab Sample ID: 380-81506-1

Date Collected: 01/31/24 10:45

Matrix: Water

Date Received: 02/01/24 09:15

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Analyst</u>	<u>Lab</u>	<u>Prepared or Analyzed</u>
Total/NA	Prep	1633	RA		738660	EWH	EET SAC	02/06/24 11:26
Total/NA	Analysis	Draft 1633	RA	1	742048	SEY	EET SAC	02/23/24 03:54
Total/NA	Prep	1633			738660	EWH	EET SAC	02/06/24 11:26
Total/NA	Analysis	Draft 1633		1	741191	RS1	EET SAC	02/17/24 09:54

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Accreditation/Certification Summary

Client: City & County of Honolulu
 Project/Site: HRS-340E - RED-HILL - INTERA

Job ID: 380-81506-1

Laboratory: Eurofins Sacramento

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

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-27
ANAB	Dept. of Defense ELAP	L2468	01-20-27
ANAB	Dept. of Energy	L2468.01	01-20-27
ANAB	ISO/IEC 17025	L2468	01-20-27
Arizona	State	AZ0708	08-11-24
Arkansas DEQ	State	88-0691	05-18-24
California	State	2897	01-31-26
Colorado	State	CA00044	08-31-24
Florida	NELAP	E87570	06-30-24
Georgia	State	4040	01-29-25
Hawaii	State	Eurofins Sacramento	01-29-24 *
Illinois	NELAP	200060	03-17-24
Kansas	NELAP	E-10375	10-31-24
Louisiana	NELAP	01944	06-30-24
Louisiana (All)	NELAP	01944	06-30-24
Maine	State	CA00004	04-14-24
Michigan	State	9947	01-31-24 *
Nevada	State	CA00044	07-31-24
New Hampshire	NELAP	2997	04-18-24
New Jersey	NELAP	CA005	06-30-24
New York	NELAP	11666	04-01-24
Ohio	State	41252	01-29-25
Oregon	NELAP	4040	01-29-25
Texas	NELAP	T104704399-23-17	05-31-24
US Fish & Wildlife	US Federal Programs	58448	04-30-24
USDA	US Federal Programs	P330-18-00239	02-28-26
Utah	NELAP	CA000442023-16	02-29-24
Virginia	NELAP	460278	03-14-24
Washington	State	C581	05-05-24
West Virginia (DW)	State	9930C	01-31-25
Wisconsin	State	998204680	08-31-24
Wyoming	State Program	8TMS-L	01-28-19 *

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

Method Summary

Client: City & County of Honolulu
Project/Site: HRS-340E - RED-HILL - INTERA

Job ID: 380-81506-1

Method	Method Description	Protocol	Laboratory
Draft 1633	Per- and Polyfluoroalkyl Substances by LC/MS/MS	EPA	EET SAC
1633	Solid-Phase Extraction (SPE)	EPA	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Sample Summary

Client: City & County of Honolulu
Project/Site: HRS-340E - RED-HILL - INTERA

Job ID: 380-81506-1

<u>Lab Sample ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Collected</u>	<u>Received</u>
380-81506-1	BWS2253-J1-AQ	Water	01/31/24 10:45	02/01/24 09:15

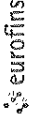
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- 15
- 16

Chain of Custody Record

Client Information Client Contact: Mr. Erwin Kawata Company: City & County of Honolulu Address: 630 South Beretania Street City: Honolulu State/Zip: HI, 96843 Phone: 808-748-5066(Tel) Email: ekawata@hbws.org Project Name: HRS-340E - RED-HILL - INTERA Site: Site J			Lab PMI: Arada, Rachelle E-Mail: Rachelle.Arada@euorofins.com PWSID:			Sample: EVA KAKOJE Phone: (858) 205-0730 Due Date Requested:			Carrier Tracking No(s): State of Origin: HAWAII			COC No: Page: Page 1 of 1 Job #:		
TAT Requested (days): STAYLOAD Compliance Project: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No PO #: C20525101 exp 05312023 WO #: 38002227 Project #: 38002227 SOW#:			Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> Matrix (Water, Solid, Other) Water			Matrix (Water, Solid, Other) Water			Matrix (Water, Solid, Other) Water			Matrix (Water, Solid, Other) Water		
Sample Date: 1/31/24 1045 Sample Time: 1045 Sample Type (C=comp, G=grab) G			Preservation Code: G			Preservation Code: G			Preservation Code: G			Preservation Code: G		
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify)												Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months		
Empty Kit Relinquished by:												Date: 1/31/24, 1330 Time:		
Relinquished by: Erwin Kawata Relinquished by:												Date/Time: 02/01/24 Date/Time:		
Relinquished by:												Date/Time:		
Custody Seal Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Custody Seal No.:												Cooler Temperature(s) °C and Other Remarks: 1.9°C		



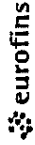
Chain of Custody Record



Client Information Client Contact: EVA KAKONE Mr. Erwin Kawata Phone: (858) 205-0730 Company: PWSID		Lab PI#: Arada, Rachelle E-Mail: Rachelle.Arada@eurofins.com State of Origin: HAWAII		Carrier Tracking No(s): Page: Page 1 of 1 Job #:		COC No:	
City & County of Honolulu Address: 630 South Beretania Street City: Honolulu State, Zip: HI 96843 Phone: 808-748-5066(Tel) Email: ekawata@hbws.org		Due Date Requested: TAT Requested (days): STANDARD Compliance Project: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No PO #: C20525101 exp 05312023 WO #:		Analysis Requested Perform MS/MSD (Yes or No)		Preservation Codes: A HCL B NaOH C Zn Acetate D Nitric Acid E NaHSO4 F MeOH G Amebler H Ascorbic Acid I Ice J DI Water K EDTA L EDA Other:	
Project #: 38002227 Site: SSOW# Site J		Field Filtered Sample (Yes or No)		Total Number of Containers		Special Instructions/Note: x = testing comes from another container	
Sample Identification BWS2263-J1-AQ BWS2263-J1-B BWS2263-J1-C		Sample Date 1/31/24 1045		Sample Type (G=Comp, G=grab) G Water G Water G Water		Matrix (W=water, S=solid, O=organic, B=tissue, A=air) Water Water Water	
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		Deliverable Requested: I II, III, IV Other (specify)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab		Archive For: _____ Months	
Empty Kit Relinquished by:		Date: _____ Time: _____		Relinquished by: Eva Kaka Date/Time: 1/31/24 / 1330		Relinquished by: DS Maryjane Date/Time: 02/01/24 0800	
Relinquished by: Eva Kaka Date/Time: 1/31/24 / 1330		Relinquished by: DS Maryjane Date/Time: 02/01/24 0800		Relinquished by: _____ Date/Time: _____		Relinquished by: _____ Date/Time: _____	
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.		Cooler Temperature(s) °C and Other Remarks: 1.9°C		Company: INTERA Company: INTERA Company:	



Chain of Custody Record



Environment Testing



Client Information (Sub Contract Lab)		Lab Pk: Arada, Rachelle		Carrier Tracking No(s): 380-105125.1	
Client Contact: Shipping/Receiving		E-Mail: Rachelle.Arada@et.eurofins.com		Page: Page 1 of 1	
Company: Eurofins Environment Testing Northern Ca		State - Hawaii		Job #: 380-81506-1	
Address: 880 Riverside Parkway		City: West Sacramento		State: CA, 95605	
Phone: 916-373-5600(Tel) 916-372-1059(Fax)		PO #:		WO #:	
Project #: HRS-340E RED-HILL - INTERA		Project #:		SSOW#:	
Site:		Due Date Requested: 2/21/2024		TAT Requested (days):	
Sample Identification - Client ID (Lab ID)		Sample Date		Sample Time	
BWS253-J1-AQ (380-81506-1)		1/31/24		10:45 Hawaiian	
Sample Type (C=comp, G=grab)		Sample Matrix (Inorganic, Organic, Metals, Other)		Matrix	
Water		Water		Water	
Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		1633.DDDP/1633_SPE EPA Method 1633 Std List	
X		X		X	
Preservation Code:		Total Number of Containers		Special Instructions/Notes:	
1/3		2			
M - Hexane					
N - None					
O - Acetone					
P - NitroSO4S					
Q - NitroSO3					
R - NitroSO2O3					
S - H2SO4					
T - TSP Dodecylhydrate					
U - Acetone					
V - MCAA					
W - pH 4-5					
Y - Trims					
Z - other (specify)					
Other:					
Analysis Requested		Return To Client <input type="checkbox"/>		Disposal By Lab <input type="checkbox"/>	
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		Return To Client <input type="checkbox"/>		Disposal By Lab <input type="checkbox"/>	
Special Instructions/QC Requirements:		Primary Deliverable Rank: 2		Archive For: Months	
Empty Kit Relinquished by:		Date/Time:		Date/Time:	
Relinquished by:		Date/Time:		Date/Time:	
Relinquished by:		Date/Time:		Date/Time:	
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No: Seal		Cooler Temperature(s) °C and Other Remarks: 19°C	





Environment Testing

Sacramento Sample Receiving Notes (SSRN)



380-81506 Field Sheet

Tracking # 270457205558

Job _____

SO (PO) / PO / SAT / 2-Day / Ground / UPS / CDO / Courier
GSL / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal Cooler Custody Seal Temperature & corrected Temperature & other observations.
File in the job folder with the COC

Therm ID <u>L06</u> Corr Factor (+/-) <u>NA</u> °C	Notes _____ _____ _____ _____ _____ _____ _____ _____ _____ _____	
Ice <input checked="" type="checkbox"/> Wet <input checked="" type="checkbox"/> Gel _____ Other _____		
Cooler Custody Seal <u>Seal 1</u>		
Cooler ID _____		
Temp Observed <u>1.9</u> °C Corrected <u>1.9</u> °C From Temp Blank <input type="checkbox"/> Sample <input checked="" type="checkbox"/>		
Opening/Processing The Shipment		
Cooler compromised/tampered with? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA		
Cooler Temperature is acceptable? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA		
Frozen samples show signs of thaw? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA		
Initials <u>DM</u> Date <u>02/01/24</u>		
Unpacking/Labeling The Samples	Trizma Lot #(s) _____ _____ _____ _____ _____ _____ _____ _____ _____ _____	
Containers are not broken or leaking? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA		
Samples compromised/tampered with? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA		
COC is complete w/o discrepancies <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA		
Sample custody seal? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA		
Sample containers have legible labels? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA		
Sample date/times are provided? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA		
Appropriate containers are used? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA		
Sample bottles are completely filled? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA		
Sample preservatives verified? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA		
Is the Field Sampler's name on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	Ammonium Acetate Lot #(s) _____ _____ _____ _____ _____ _____ _____ _____ _____ _____	
Samples w/o discrepancies? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA		
Zero headspace?* <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA		
Alkalinity has no headspace? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA		
Perchlorate has headspace? (Methods 314, 331 8850) <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA		
Multiphasic samples are not present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA		
*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")		
Initials <u>SO</u> Date <u>2/5/24</u>		Login Completion
Initials <u>SO</u> Date <u>2/5/24</u>		
		Receipt Temperature on COC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
	NCM Filed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	
	Samples received within hold time? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	
	Log Release checked in TALS? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	

WR3 80

Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-81506-1

Login Number: 81506

List Source: Eurofins Eaton Analytical Pomona

List Number: 1

Creator: Sanchez, Joseph G

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

Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-81506-1

Login Number: 81506
List Number: 2
Creator: Oropeza, Salvador

List Source: Eurofins Sacramento
List Creation: 02/05/24 05:00 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	Seal
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.9C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	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	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
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	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

