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ANALYTICAL REPORT

PREPARED FOR

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City & County of Honolulu
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JOB DESCRIPTION

RED-HILL
RUSH Weekly Red Hill

JOB NUMBER

380-66857-1

Eurofins Eaton Analytical Pomona

Job Notes

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The test results in this report relate only to the samples as received by the laboratory and 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: RED-HILL

Job ID: 380-66857-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
*1	LCS/LCSD RPD exceeds control limits.
^3+	Reporting Limit Check Standard is outside acceptance limits, high biased

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

Case Narrative

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

Job ID: 380-66857-1

Job ID: 380-66857-1

Laboratory: Eurofins Eaton Analytical Pomona

Narrative

Job Narrative 380-66857-1

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 samples were received on 10/12/2023 10:33 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 0.4°C, 0.7°C and 3.9°C

GC/MS Semi VOA

Method 525.2_PREC: The continuing calibration verification (CCV) associated with batch 380-59651 recovered above the upper control limit for Heptachlor epoxide (isomer B). The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: MOANALUA WELLS (380-66857-1) and (CCVIS 380-59651/2).

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

PFAS

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: RED-HILL

Job ID: 380-66857-1

Client Sample ID: MOANALUA WELLS
PWSID Number: HI0000331

Lab Sample ID: 380-66857-1

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.4		2.0	ng/L	1		533	Total/NA

Client Sample ID: FB MOANALUA WELLS
PWSID Number: HI0000331

Lab Sample ID: 380-66857-3

No Detections.

This Detection Summary does not include radiochemical test results.

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Client Sample Results

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

Job ID: 380-66857-1

Client Sample ID: MOANALUA WELLS

Lab Sample ID: 380-66857-1

Date Collected: 10/10/23 12:00

Matrix: Drinking Water

Date Received: 10/12/23 10:33

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	<0.099		0.099	ug/L		10/13/23 19:54	10/16/23 17:50	1
2,4'-DDD	<0.099		0.099	ug/L		10/13/23 19:54	10/16/23 17:50	1
2,4'-DDE	<0.099		0.099	ug/L		10/13/23 19:54	10/16/23 17:50	1
2,4'-DDT	<0.099		0.099	ug/L		10/13/23 19:54	10/16/23 17:50	1
2,4-Dinitrotoluene	<0.099		0.099	ug/L		10/13/23 19:54	10/16/23 17:50	1
2,6-Dinitrotoluene	<0.099		0.099	ug/L		10/13/23 19:54	10/16/23 17:50	1
2-Methylnaphthalene	<0.099		0.099	ug/L		10/13/23 19:54	10/16/23 17:50	1
4,4'-DDD	<0.099		0.099	ug/L		10/13/23 19:54	10/16/23 17:50	1
4,4'-DDE	<0.099		0.099	ug/L		10/13/23 19:54	10/16/23 17:50	1
4,4'-DDT	<0.099		0.099	ug/L		10/13/23 19:54	10/16/23 17:50	1
Acenaphthene	<0.099		0.099	ug/L		10/13/23 19:54	10/16/23 17:50	1
Acenaphthylene	<0.099		0.099	ug/L		10/13/23 19:54	10/16/23 17:50	1
Acetochlor	<0.099		0.099	ug/L		10/13/23 19:54	10/16/23 17:50	1
Alachlor	<0.050		0.050	ug/L		10/13/23 19:54	10/16/23 17:50	1
alpha-BHC	<0.099		0.099	ug/L		10/13/23 19:54	10/16/23 17:50	1
alpha-Chlordane	<0.050		0.050	ug/L		10/13/23 19:54	10/16/23 17:50	1
Anthracene	<0.020		0.020	ug/L		10/13/23 19:54	10/16/23 17:50	1
Atrazine	<0.050		0.050	ug/L		10/13/23 19:54	10/16/23 17:50	1
Benz(a)anthracene	<0.050		0.050	ug/L		10/13/23 19:54	10/16/23 17:50	1
Benzo[a]pyrene	<0.020	*+ *1	0.020	ug/L		10/13/23 19:54	10/16/23 17:50	1
Benzo[b]fluoranthene	<0.020	*+ *1	0.020	ug/L		10/13/23 19:54	10/16/23 17:50	1
Benzo[g,h,i]perylene	<0.050		0.050	ug/L		10/13/23 19:54	10/16/23 17:50	1
Benzo[k]fluoranthene	<0.020	*+ *1	0.020	ug/L		10/13/23 19:54	10/16/23 17:50	1
beta-BHC	<0.099		0.099	ug/L		10/13/23 19:54	10/16/23 17:50	1
Bis(2-ethylhexyl) phthalate	<0.60		0.60	ug/L		10/13/23 19:54	10/16/23 17:50	1
Bromacil	<0.099		0.099	ug/L		10/13/23 19:54	10/16/23 17:50	1
Butachlor	<0.050		0.050	ug/L		10/13/23 19:54	10/16/23 17:50	1
Butylbenzylphthalate	<0.50		0.50	ug/L		10/13/23 19:54	10/16/23 17:50	1
Chlorobenzilate	<0.099		0.099	ug/L		10/13/23 19:54	10/16/23 17:50	1
Chloroneb	<0.099		0.099	ug/L		10/13/23 19:54	10/16/23 17:50	1
Chlorothalonil (Draconil, Bravo)	<0.099	^3+	0.099	ug/L		10/13/23 19:54	10/16/23 17:50	1
Chlorpyrifos	<0.050		0.050	ug/L		10/13/23 19:54	10/16/23 17:50	1
Chrysene	<0.020		0.020	ug/L		10/13/23 19:54	10/16/23 17:50	1
delta-BHC	<0.099		0.099	ug/L		10/13/23 19:54	10/16/23 17:50	1
Di(2-ethylhexyl)adipate	<0.60		0.60	ug/L		10/13/23 19:54	10/16/23 17:50	1
Dibenz(a,h)an hracene	<0.050	*+	0.050	ug/L		10/13/23 19:54	10/16/23 17:50	1
Diclorvos (DDVP)	<0.050		0.050	ug/L		10/13/23 19:54	10/16/23 17:50	1
Dieldrin	<0.20		0.20	ug/L		10/13/23 19:54	10/16/23 17:50	1
Diethylphthalate	<0.50		0.50	ug/L		10/13/23 19:54	10/16/23 17:50	1
Dimethylphalate	<0.50		0.50	ug/L		10/13/23 19:54	10/16/23 17:50	1
Di-n-butyl phthalate	<0.99		0.99	ug/L		10/13/23 19:54	10/16/23 17:50	1
Di-n-octyl phthalate	<0.099		0.099	ug/L		10/13/23 19:54	10/16/23 17:50	1
Endosulfan I (Alpha)	<0.099		0.099	ug/L		10/13/23 19:54	10/16/23 17:50	1
Endosulfan II (Beta)	<0.099		0.099	ug/L		10/13/23 19:54	10/16/23 17:50	1
Endosulfan sulfate	<0.099		0.099	ug/L		10/13/23 19:54	10/16/23 17:50	1
Endrin	<0.099		0.099	ug/L		10/13/23 19:54	10/16/23 17:50	1
Endrin aldehyde	<0.099		0.099	ug/L		10/13/23 19:54	10/16/23 17:50	1
EPTC	<0.099		0.099	ug/L		10/13/23 19:54	10/16/23 17:50	1
Fluoranthene	<0.099		0.099	ug/L		10/13/23 19:54	10/16/23 17:50	1

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Client Sample Results

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

Job ID: 380-66857-1

Client Sample ID: MOANALUA WELLS

Lab Sample ID: 380-66857-1

Date Collected: 10/10/23 12:00

Matrix: Drinking Water

Date Received: 10/12/23 10:33

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	<0.050		0.050	ug/L		10/13/23 19:54	10/16/23 17:50	1
gamma-Chlordane	<0.050		0.050	ug/L		10/13/23 19:54	10/16/23 17:50	1
Heptachlor	<0.040		0.040	ug/L		10/13/23 19:54	10/16/23 17:50	1
Heptachlor epoxide (isomer B)	<0.050		0.050	ug/L		10/13/23 19:54	10/16/23 17:50	1
Hexachlorobenzene	<0.050		0.050	ug/L		10/13/23 19:54	10/16/23 17:50	1
Hexachlorocyclopentadiene	<0.050		0.050	ug/L		10/13/23 19:54	10/16/23 17:50	1
Indeno[1,2,3-cd]pyrene	<0.050	*+	0.050	ug/L		10/13/23 19:54	10/16/23 17:50	1
Isophorone	<0.50		0.50	ug/L		10/13/23 19:54	10/16/23 17:50	1
Lindane	<0.040		0.040	ug/L		10/13/23 19:54	10/16/23 17:50	1
Malathion	<0.099		0.099	ug/L		10/13/23 19:54	10/16/23 17:50	1
Methoxychlor	<0.099	*+	0.099	ug/L		10/13/23 19:54	10/16/23 17:50	1
Metolachlor	<0.050		0.050	ug/L		10/13/23 19:54	10/16/23 17:50	1
Molinate	<0.099		0.099	ug/L		10/13/23 19:54	10/16/23 17:50	1
Naphthalene	<0.30		0.30	ug/L		10/13/23 19:54	10/16/23 17:50	1
Parathion	<0.099		0.099	ug/L		10/13/23 19:54	10/16/23 17:50	1
Pendimethalin (Penoxaline)	<0.099		0.099	ug/L		10/13/23 19:54	10/16/23 17:50	1
Phenanthrene	<0.040		0.040	ug/L		10/13/23 19:54	10/16/23 17:50	1
Propachlor	<0.050		0.050	ug/L		10/13/23 19:54	10/16/23 17:50	1
Pyrene	<0.050		0.050	ug/L		10/13/23 19:54	10/16/23 17:50	1
Simazine	<0.050		0.050	ug/L		10/13/23 19:54	10/16/23 17:50	1
Terbacil	<0.099		0.099	ug/L		10/13/23 19:54	10/16/23 17:50	1
Terbutylazine	<0.099		0.099	ug/L		10/13/23 19:54	10/16/23 17:50	1
Thiobencarb	<0.20		0.20	ug/L		10/13/23 19:54	10/16/23 17:50	1
Total Permethrin (mixed isomers)	<0.20		0.20	ug/L		10/13/23 19:54	10/16/23 17:50	1
trans-Nonachlor	<0.050		0.050	ug/L		10/13/23 19:54	10/16/23 17:50	1
Trifluralin	<0.099		0.099	ug/L		10/13/23 19:54	10/16/23 17:50	1

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Tentatively Identified Compound	None		ug/L			N/A	10/13/23 19:54	10/16/23 17:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	96		70 - 130	10/13/23 19:54	10/16/23 17:50	1
Perylene-d12	100		70 - 130	10/13/23 19:54	10/16/23 17:50	1
Triphenylphosphate	125		70 - 130	10/13/23 19:54	10/16/23 17:50	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafuoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 00:03	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 00:03	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 00:03	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 00:03	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 00:03	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 00:03	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 00:03	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 00:03	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 00:03	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 00:03	1

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Client Sample Results

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

Job ID: 380-66857-1

Client Sample ID: MOANALUA WELLS

Lab Sample ID: 380-66857-1

Date Collected: 10/10/23 12:00

Matrix: Drinking Water

Date Received: 10/12/23 10:33

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 00:03	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 00:03	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 00:03	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 00:03	1
Perfluorobutanoic acid (PFBA)	2.4		2.0	ng/L		10/29/23 12:52	11/02/23 00:03	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 00:03	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 00:03	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 00:03	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 00:03	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 00:03	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 00:03	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 00:03	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 00:03	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 00:03	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 00:03	1
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	68		50 - 200			10/29/23 12:52	11/02/23 00:03	1
13C6 PFDA	95		50 - 200			10/29/23 12:52	11/02/23 00:03	1
13C5 PFHxA	84		50 - 200			10/29/23 12:52	11/02/23 00:03	1
13C4 PFHpA	94		50 - 200			10/29/23 12:52	11/02/23 00:03	1
13C8 PFOA	97		50 - 200			10/29/23 12:52	11/02/23 00:03	1
13C9 PFNA	101		50 - 200			10/29/23 12:52	11/02/23 00:03	1
13C7 PFUnA	93		50 - 200			10/29/23 12:52	11/02/23 00:03	1
13C2 PFDoA	95		50 - 200			10/29/23 12:52	11/02/23 00:03	1
13C4 PFBA	95		50 - 200			10/29/23 12:52	11/02/23 00:03	1
13C5 PFPeA	99		50 - 200			10/29/23 12:52	11/02/23 00:03	1
13C3 PFBS	102		50 - 200			10/29/23 12:52	11/02/23 00:03	1
13C3 PFHxS	101		50 - 200			10/29/23 12:52	11/02/23 00:03	1
13C8 PFOS	102		50 - 200			10/29/23 12:52	11/02/23 00:03	1
13C2-4:2-FTS	111		50 - 200			10/29/23 12:52	11/02/23 00:03	1
13C2-6:2-FTS	138		50 - 200			10/29/23 12:52	11/02/23 00:03	1
13C2-8:2-FTS	121		50 - 200			10/29/23 12:52	11/02/23 00:03	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:33	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:33	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:33	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:33	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:33	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-66857-1

Client Sample ID: MOANALUA WELLS

Lab Sample ID: 380-66857-1

Date Collected: 10/10/23 12:00

Matrix: Drinking Water

Date Received: 10/12/23 10:33

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:33	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:33	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:33	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:33	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:33	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:33	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:33	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:33	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:33	1
Perfluorotridecanoic acid (PFTTrDA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:33	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:33	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:33	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:33	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	100		70 - 130			10/18/23 08:22	10/21/23 08:33	1
13C2 PFHxA	95		70 - 130			10/18/23 08:22	10/21/23 08:33	1
13C2 PFDA	108		70 - 130			10/18/23 08:22	10/21/23 08:33	1
13C3-GenX	95		70 - 130			10/18/23 08:22	10/21/23 08:33	1

Client Sample ID: FB MOANALUA WELLS

Lab Sample ID: 380-66857-3

Date Collected: 10/10/23 12:00

Matrix: Water

Date Received: 10/12/23 10:33

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 02:11	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 02:11	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 02:11	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 02:11	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 02:11	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 02:11	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 02:11	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 02:11	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 02:11	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 02:11	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 02:11	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 02:11	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 02:11	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 02:11	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 02:11	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 02:11	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 02:11	1

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Client Sample Results

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

Job ID: 380-66857-1

Client Sample ID: FB MOANALUA WELLS

Lab Sample ID: 380-66857-3

Date Collected: 10/10/23 12:00

Matrix: Water

Date Received: 10/12/23 10:33

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 02:11	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 02:11	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 02:11	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 02:11	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 02:11	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 02:11	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 02:11	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		10/29/23 12:52	11/02/23 02:11	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	81		50 - 200	10/29/23 12:52	11/02/23 02:11	1
13C6 PFDA	101		50 - 200	10/29/23 12:52	11/02/23 02:11	1
13C5 PFHxA	94		50 - 200	10/29/23 12:52	11/02/23 02:11	1
13C4 PFHpA	103		50 - 200	10/29/23 12:52	11/02/23 02:11	1
13C8 PFOA	100		50 - 200	10/29/23 12:52	11/02/23 02:11	1
13C9 PFNA	109		50 - 200	10/29/23 12:52	11/02/23 02:11	1
13C7 PFUnA	94		50 - 200	10/29/23 12:52	11/02/23 02:11	1
13C2 PFDoA	93		50 - 200	10/29/23 12:52	11/02/23 02:11	1
13C4 PFBA	106		50 - 200	10/29/23 12:52	11/02/23 02:11	1
13C5 PFPeA	105		50 - 200	10/29/23 12:52	11/02/23 02:11	1
13C3 PFBS	100		50 - 200	10/29/23 12:52	11/02/23 02:11	1
13C3 PFHxS	104		50 - 200	10/29/23 12:52	11/02/23 02:11	1
13C8 PFOS	101		50 - 200	10/29/23 12:52	11/02/23 02:11	1
13C2-4:2-FTS	107		50 - 200	10/29/23 12:52	11/02/23 02:11	1
13C2-6:2-FTS	124		50 - 200	10/29/23 12:52	11/02/23 02:11	1
13C2-8:2-FTS	125		50 - 200	10/29/23 12:52	11/02/23 02:11	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:43	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:43	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:43	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:43	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:43	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:43	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:43	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:43	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:43	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:43	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:43	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:43	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:43	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:43	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-66857-1

Client Sample ID: FB MOANALUA WELLS

Lab Sample ID: 380-66857-3

Date Collected: 10/10/23 12:00

Matrix: Water

Date Received: 10/12/23 10:33

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:43	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:43	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:43	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		10/18/23 08:22	10/21/23 08:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	88		70 - 130	10/18/23 08:22	10/21/23 08:43	1
13C2 PFHxA	100		70 - 130	10/18/23 08:22	10/21/23 08:43	1
13C2 PFDA	98		70 - 130	10/18/23 08:22	10/21/23 08:43	1
13C3-GenX	96		70 - 130	10/18/23 08:22	10/21/23 08:43	1

Action Limit Summary

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

Job ID: 380-66857-1

Client Sample ID: MOANALUA WELLS

Lab Sample ID: 380-66857-1

PWSID Number: HI0000331

Compliance Check

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

Analyte	Result	Qualifier	Unit	EPAMCL	RL	Method	Prep Type
				Limit			
Alachlor	<0.050		ug/L	2	0.050	525.2	Total/NA
Atrazine	<0.050		ug/L	3	0.050	525.2	Total/NA
Benzo[a]pyrene	<0.020	*+ *1	ug/L	0.2	0.020	525.2	Total/NA
Bis(2-ethylhexyl) phthalate	<0.60		ug/L	6	0.60	525.2	Total/NA
Di(2-ethylhexyl)adipate	<0.60		ug/L	400	0.60	525.2	Total/NA
Endrin	<0.099		ug/L	2	0.099	525.2	Total/NA
Heptachlor	<0.040		ug/L	0.4	0.040	525.2	Total/NA
Heptachlor epoxide (isomer B)	<0.050		ug/L	0.2	0.050	525.2	Total/NA
Hexachlorobenzene	<0.050		ug/L	1	0.050	525.2	Total/NA
Hexachlorocyclopentadiene	<0.050		ug/L	50	0.050	525.2	Total/NA
Lindane	<0.040		ug/L	0.2	0.040	525.2	Total/NA
Methoxychlor	<0.099	*+	ug/L	40	0.099	525.2	Total/NA
Simazine	<0.050		ug/L	4	0.050	525.2	Total/NA

Surrogate Summary

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

Job ID: 380-66857-1

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

Matrix: Drinking Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		2NMX (70-130)	PRY (70-130)	TPP (70-130)
380-66857-1	MOANALUA WELLS	96	100	125

Surrogate Legend

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

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

Matrix: Drinking Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		d5NEFOS (70-130)	PFHxA (70-130)	PFDA (70-130)	GenX (70-130)
380-66857-1	MOANALUA WELLS	100	95	108	95

Surrogate Legend

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

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		d5NEFOS (70-130)	PFHxA (70-130)	PFDA (70-130)	GenX (70-130)
380-66846-L-1-A MSD	Matrix Spike Duplicate	98	115	109	103
380-66846-M-1-A MS	Matrix Spike	88	101	104	94
380-66857-3	FB MOANALUA WELLS	88	100	98	96
LCS 380-59976/25-A	Lab Control Sample	97	110	109	102
LCSD 380-59976/26-A	Lab Control Sample Dup	96	101	101	94
MBL 380-59976/23-A	Method Blank	89	107	98	92
MRL 380-59976/24-A	Lab Control Sample	88	96	98	85

Surrogate Legend

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

Isotope Dilution Summary

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

Job ID: 380-66857-1

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)
380-66857-1	MOANALUA WELLS	68	95	84	94	97	101	93	95
380-66857-1 MS	MOANALUA WELLS	70	90	79	82	88	95	90	87
380-66857-1 MSD	MOANALUA WELLS	82	92	89	91	94	99	89	89

		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)
380-66857-1	MOANALUA WELLS	95	99	102	101	102	111	138	121
380-66857-1 MS	MOANALUA WELLS	89	94	94	100	96	97	109	110
380-66857-1 MSD	MOANALUA WELLS	101	113	100	101	100	102	106	106

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)
380-66857-3	FB MOANALUA WELLS	81	101	94	103	100	109	94	93
LCS 380-61498/21-A	Lab Control Sample	88	97	97	98	96	103	94	94
LCSD 380-61498/22-A	Lab Control Sample Dup	89	97	96	96	101	108	99	97
MBL 380-61498/19-A	Method Blank	78	96	96	96	102	107	91	91
MRL 380-61498/20-A	Lab Control Sample	82	100	94	105	104	110	96	97

		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)
380-66857-3	FB MOANALUA WELLS	106	105	100	104	101	107	124	125
LCS 380-61498/21-A	Lab Control Sample	98	105	101	100	99	106	111	108
LCSD 380-61498/22-A	Lab Control Sample Dup	103	103	97	98	96	97	106	110
MBL 380-61498/19-A	Method Blank	105	110	97	102	100	107	126	122
MRL 380-61498/20-A	Lab Control Sample	107	111	101	104	103	110	127	111

Surrogate Legend

- HFPODA = 13C3 HFPO-DA

Isotope Dilution Summary

Client: City & County of Honolulu

Job ID: 380-66857-1

Project/Site: RED-HILL

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

- 1
- 2
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- 4
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QC Sample Results

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

Job ID: 380-66857-1

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

Lab Sample ID: MBL 380-61498/19-A
Matrix: Water
Analysis Batch: 62073

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 61498

Analyte	MBL	MBL	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
Perfluorobutanoic acid (PFBA)	<0.69		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<0.38		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<0.37		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<0.48		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.47		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.25		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.46		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.15		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
Perfluoropentanoic acid (PFPeA)	<0.38		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.36		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1
Perfluoropentanesulfonic acid (PFPeS)	<0.39		2.0	ng/L		10/29/23 12:52	11/01/23 23:23	1

Isotope Dilution	MBL	MBL	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C3 HFPO-DA	78		50 - 200	10/29/23 12:52	11/01/23 23:23	1
13C6 PFDA	96		50 - 200	10/29/23 12:52	11/01/23 23:23	1
13C5 PFHxA	96		50 - 200	10/29/23 12:52	11/01/23 23:23	1
13C4 PFHpA	96		50 - 200	10/29/23 12:52	11/01/23 23:23	1
13C8 PFOA	102		50 - 200	10/29/23 12:52	11/01/23 23:23	1
13C9 PFNA	107		50 - 200	10/29/23 12:52	11/01/23 23:23	1
13C7 PFUnA	91		50 - 200	10/29/23 12:52	11/01/23 23:23	1
13C2 PFDoA	91		50 - 200	10/29/23 12:52	11/01/23 23:23	1
13C4 PFBA	105		50 - 200	10/29/23 12:52	11/01/23 23:23	1
13C5 PFPeA	110		50 - 200	10/29/23 12:52	11/01/23 23:23	1
13C3 PFBS	97		50 - 200	10/29/23 12:52	11/01/23 23:23	1
13C3 PFHxS	102		50 - 200	10/29/23 12:52	11/01/23 23:23	1

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QC Sample Results

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

Job ID: 380-66857-1

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

Lab Sample ID: MBL 380-61498/19-A
Matrix: Water
Analysis Batch: 62073

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 61498

Isotope Dilution	MBL MBL		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C8 PFOS	100		50 - 200	10/29/23 12:52	11/01/23 23:23	1
13C2-4:2-FTS	107		50 - 200	10/29/23 12:52	11/01/23 23:23	1
13C2-6:2-FTS	126		50 - 200	10/29/23 12:52	11/01/23 23:23	1
13C2-8:2-FTS	122		50 - 200	10/29/23 12:52	11/01/23 23:23	1

Lab Sample ID: LCS 380-61498/21-A
Matrix: Water
Analysis Batch: 62073

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 61498

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	60.1	57.9		ng/L		96	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	60.1	61.8		ng/L		103	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	60.1	54.5		ng/L		91	70 - 130
Perfluorobutanesulfonic acid (PFBS)	60.1	56.4		ng/L		94	70 - 130
Perfluorodecanoic acid (PFDA)	60.1	53.8		ng/L		89	70 - 130
Perfluorododecanoic acid (PFDoA)	60.1	62.9		ng/L		105	70 - 130
Perfluoroheptanoic acid (PFHpA)	60.1	59.4		ng/L		99	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	60.1	56.7		ng/L		94	70 - 130
Perfluorohexanoic acid (PFHxA)	60.1	55.9		ng/L		93	70 - 130
Perfluorononanoic acid (PFNA)	60.1	56.7		ng/L		94	70 - 130
Perfluorooctanesulfonic acid (PFOS)	60.1	60.6		ng/L		101	70 - 130
Perfluorooctanoic acid (PFOA)	60.1	57.2		ng/L		95	70 - 130
Perfluoroundecanoic acid (PFUnA)	60.1	59.8		ng/L		100	70 - 130
Perfluorobutanoic acid (PFBA)	60.1	65.7		ng/L		109	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	60.1	56.2		ng/L		94	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	60.1	59.1		ng/L		98	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	60.1	52.1		ng/L		87	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	60.1	51.9		ng/L		86	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	60.1	49.3		ng/L		82	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	60.1	62.4		ng/L		104	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	60.1	53.3		ng/L		89	70 - 130
Perfluoropentanoic acid (PFPeA)	60.1	53.7		ng/L		89	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	60.1	55.9		ng/L		93	70 - 130

QC Sample Results

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

Job ID: 380-66857-1

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

Lab Sample ID: LCS 380-61498/21-A

Matrix: Water

Analysis Batch: 62073

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 61498

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoropentanesulfonic acid (PFPeS)	60.1	54.5		ng/L		91	70 - 130
LCS LCS							
Isotope Dilution	%Recovery	Qualifier	Limits				
13C3 HFPO-DA	88		50 - 200				
13C6 PFDA	97		50 - 200				
13C5 PFHxA	97		50 - 200				
13C4 PFHpA	98		50 - 200				
13C8 PFOA	96		50 - 200				
13C9 PFNA	103		50 - 200				
13C7 PFUnA	94		50 - 200				
13C2 PFDoA	94		50 - 200				
13C4 PFBA	98		50 - 200				
13C5 PFPeA	105		50 - 200				
13C3 PFBS	101		50 - 200				
13C3 PFHxS	100		50 - 200				
13C8 PFOS	99		50 - 200				
13C2-4:2-FTS	106		50 - 200				
13C2-6:2-FTS	111		50 - 200				
13C2-8:2-FTS	108		50 - 200				

Lab Sample ID: LCSD 380-61498/22-A

Matrix: Water

Analysis Batch: 62073

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 61498

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	60.2	56.3		ng/L		94	70 - 130	11	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	60.2	62.5		ng/L		104	70 - 130	8	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	60.2	66.1		ng/L		110	70 - 130	7	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	60.2	55.9		ng/L		93	70 - 130	2	30
Perfluorobutanesulfonic acid (PFBS)	60.2	59.0		ng/L		98	70 - 130	4	30
Perfluorodecanoic acid (PFDA)	60.2	59.7		ng/L		99	70 - 130	10	30
Perfluorododecanoic acid (PFDoA)	60.2	67.1		ng/L		111	70 - 130	7	30
Perfluoroheptanoic acid (PFHpA)	60.2	64.4		ng/L		107	70 - 130	8	30
Perfluorohexanesulfonic acid (PFHxS)	60.2	59.9		ng/L		99	70 - 130	5	30
Perfluorohexanoic acid (PFHxA)	60.2	58.9		ng/L		98	70 - 130	5	30
Perfluorononanoic acid (PFNA)	60.2	58.2		ng/L		97	70 - 130	2	30
Perfluorooctanesulfonic acid (PFOS)	60.2	63.4		ng/L		105	70 - 130	4	30
Perfluorooctanoic acid (PFOA)	60.2	62.4		ng/L		104	70 - 130	9	30
Perfluoroundecanoic acid (PFUnA)	60.2	64.1		ng/L		106	70 - 130	7	30
Perfluorobutanoic acid (PFBA)	60.2	66.9		ng/L		111	70 - 130	2	30

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QC Sample Results

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

Job ID: 380-66857-1

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

Lab Sample ID: LCSD 380-61498/22-A
Matrix: Water
Analysis Batch: 62073

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 61498

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	60.2	62.1		ng/L		103	70 - 130	10	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	60.2	63.9		ng/L		106	70 - 130	8	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	60.2	55.5		ng/L		92	70 - 130	6	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	60.2	54.8		ng/L		91	70 - 130	5	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	60.2	50.2		ng/L		83	70 - 130	2	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	60.2	62.9		ng/L		104	70 - 130	1	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	60.2	60.7		ng/L		101	70 - 130	13	30
Perfluoropentanoic acid (PFPeA)	60.2	59.9		ng/L		99	70 - 130	11	30
Perfluoroheptanesulfonic acid (PFHpS)	60.2	58.0		ng/L		96	70 - 130	4	30
Perfluoropentanesulfonic acid (PFPeS)	60.2	57.6		ng/L		96	70 - 130	6	30

Isotope Dilution	LCSD LCSD		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	89		50 - 200
13C6 PFDA	97		50 - 200
13C5 PFHxA	96		50 - 200
13C4 PFHpA	96		50 - 200
13C8 PFOA	101		50 - 200
13C9 PFNA	108		50 - 200
13C7 PFUnA	99		50 - 200
13C2 PFDoA	97		50 - 200
13C4 PFBA	103		50 - 200
13C5 PFPeA	103		50 - 200
13C3 PFBS	97		50 - 200
13C3 PFHxS	98		50 - 200
13C8 PFOS	96		50 - 200
13C2-4:2-FTS	97		50 - 200
13C2-6:2-FTS	106		50 - 200
13C2-8:2-FTS	110		50 - 200

Lab Sample ID: MRL 380-61498/20-A
Matrix: Water
Analysis Batch: 62073

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 61498

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.00	1.45	J	ng/L		73	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.00	1.82	J	ng/L		91	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	1.90	J	ng/L		95	50 - 150

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QC Sample Results

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

Job ID: 380-66857-1

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

Lab Sample ID: MRL 380-61498/20-A

Matrix: Water

Analysis Batch: 62073

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 61498

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide	2.00	1.65	J	ng/L		82	50 - 150
Dimer Acid (HFPO-DA/GenX)							
Perfluorobutanesulfonic acid (PFBS)	2.00	1.73	J	ng/L		86	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	1.69	J	ng/L		84	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	1.92	J	ng/L		96	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	1.93	J	ng/L		96	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.00	1.71	J	ng/L		86	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	2.05	J	ng/L		102	50 - 150
Perfluorononanoic acid (PFNA)	2.00	1.76	J	ng/L		88	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.00	1.89	J	ng/L		94	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	1.95	J	ng/L		97	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	1.98	J	ng/L		99	50 - 150
Perfluorobutanoic acid (PFBA)	2.00	2.10	J	ng/L		105	50 - 150
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	2.00	1.87	J	ng/L		93	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	2.00	1.80	J	ng/L		90	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	2.00	1.79	J	ng/L		89	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.00	1.86	J	ng/L		93	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	2.00	1.50	J	ng/L		75	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.00	1.86	J	ng/L		93	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.00	1.66	J	ng/L		83	50 - 150
Perfluoropentanoic acid (PFPeA)	2.00	1.88	J	ng/L		94	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	2.00	1.74	J	ng/L		87	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	2.00	1.71	J	ng/L		85	50 - 150

Isotope Dilution	MRL %Recovery	MRL Qualifier	MRL Limits
13C3 HFPO-DA	82		50 - 200
13C6 PFDA	100		50 - 200
13C5 PFHxA	94		50 - 200
13C4 PFHpA	105		50 - 200
13C8 PFOA	104		50 - 200
13C9 PFNA	110		50 - 200
13C7 PFUnA	96		50 - 200
13C2 PFDoA	97		50 - 200
13C4 PFBA	107		50 - 200
13C5 PFPeA	111		50 - 200
13C3 PFBS	101		50 - 200
13C3 PFHxS	104		50 - 200
13C8 PFOS	103		50 - 200

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-66857-1

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

Lab Sample ID: MRL 380-61498/20-A
Matrix: Water
Analysis Batch: 62073

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 61498

Isotope Dilution	MRL MRL		Limits
	%Recovery	Qualifier	
13C2-4:2-FTS	110		50 - 200
13C2-6:2-FTS	127		50 - 200
13C2-8:2-FTS	111		50 - 200

Lab Sample ID: 380-66857-1 MS
Matrix: Drinking Water
Analysis Batch: 62073

Client Sample ID: MOANALUA WELLS
Prep Type: Total/NA
Prep Batch: 61498

Analyte	Sample	Sample	Spike	MS MS		Unit	D	%Rec	%Rec	Limits
	Result	Qualifier		Result	Qualifier					
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		60.1	54.8		ng/L		91		70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		60.1	61.1		ng/L		102		70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		60.1	62.4		ng/L		104		70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		60.1	54.5		ng/L		91		70 - 130
Perfluorobutanesulfonic acid (PFBS)	<2.0		60.1	62.2		ng/L		103		70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		60.1	57.0		ng/L		95		70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		60.1	67.6		ng/L		112		70 - 130
Perfluoroheptanoic acid (PFHpA)	<2.0		60.1	63.1		ng/L		104		70 - 130
Perfluorohexanesulfonic acid (PFHxS)	<2.0		60.1	59.6		ng/L		97		70 - 130
Perfluorohexanoic acid (PFHxA)	<2.0		60.1	61.8		ng/L		101		70 - 130
Perfluorononanoic acid (PFNA)	<2.0		60.1	55.9		ng/L		93		70 - 130
Perfluorooctanesulfonic acid (PFOS)	<2.0		60.1	64.8		ng/L		105		70 - 130
Perfluorooctanoic acid (PFOA)	<2.0		60.1	62.0		ng/L		102		70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		60.1	63.4		ng/L		105		70 - 130
Perfluorobutanoic acid (PFBA)	2.4		60.1	69.3		ng/L		111		70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		60.1	61.7		ng/L		103		70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		60.1	64.2		ng/L		107		70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		60.1	58.6		ng/L		98		70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		60.1	56.9		ng/L		95		70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		60.1	52.8		ng/L		88		70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		60.1	61.8		ng/L		103		70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		60.1	53.2		ng/L		89		70 - 130
Perfluoropentanoic acid (PFPeA)	<2.0		60.1	60.1		ng/L		98		70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		60.1	57.8		ng/L		96		70 - 130
Perfluoropentanesulfonic acid (PFPeS)	<2.0		60.1	57.6		ng/L		96		70 - 130

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QC Sample Results

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

Job ID: 380-66857-1

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

Isotope Dilution	MS MS		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	70		50 - 200
13C6 PFDA	90		50 - 200
13C5 PFHxA	79		50 - 200
13C4 PFHpA	82		50 - 200
13C8 PFOA	88		50 - 200
13C9 PFNA	95		50 - 200
13C7 PFUnA	90		50 - 200
13C2 PFDoA	87		50 - 200
13C4 PFBA	89		50 - 200
13C5 PFPeA	94		50 - 200
13C3 PFBS	94		50 - 200
13C3 PFHxS	100		50 - 200
13C8 PFOS	96		50 - 200
13C2-4:2-FTS	97		50 - 200
13C2-6:2-FTS	109		50 - 200
13C2-8:2-FTS	110		50 - 200

Lab Sample ID: 380-66857-1 MSD

Matrix: Drinking Water

Analysis Batch: 62073

Client Sample ID: MOANALUA WELLS

Prep Type: Total/NA

Prep Batch: 61498

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD
											Limit
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		60.1	51.9		ng/L		86	70 - 130	5	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		60.1	58.1		ng/L		97	70 - 130	5	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		60.1	61.5		ng/L		102	70 - 130	1	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		60.1	54.3		ng/L		90	70 - 130	0	30
Perfluorobutanesulfonic acid (PFBS)	<2.0		60.1	58.0		ng/L		96	70 - 130	7	30
Perfluorodecanoic acid (PFDA)	<2.0		60.1	57.1		ng/L		95	70 - 130	0	30
Perfluorododecanoic acid (PFDoA)	<2.0		60.1	67.2		ng/L		112	70 - 130	1	30
Perfluoroheptanoic acid (PFHpA)	<2.0		60.1	62.3		ng/L		103	70 - 130	1	30
Perfluorohexanesulfonic acid (PFHxS)	<2.0		60.1	58.2		ng/L		95	70 - 130	2	30
Perfluorohexanoic acid (PFHxA)	<2.0		60.1	60.0		ng/L		98	70 - 130	3	30
Perfluorononanoic acid (PFNA)	<2.0		60.1	56.5		ng/L		94	70 - 130	1	30
Perfluorooctanesulfonic acid (PFOS)	<2.0		60.1	62.4		ng/L		101	70 - 130	4	30
Perfluorooctanoic acid (PFOA)	<2.0		60.1	63.7		ng/L		105	70 - 130	3	30
Perfluoroundecanoic acid (PFUnA)	<2.0		60.1	66.2		ng/L		110	70 - 130	4	30
Perfluorobutanoic acid (PFBA)	2.4		60.1	70.3		ng/L		113	70 - 130	1	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		60.1	61.1		ng/L		102	70 - 130	1	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		60.1	60.7		ng/L		101	70 - 130	6	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		60.1	59.2		ng/L		98	70 - 130	1	30

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-66857-1

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

Lab Sample ID: 380-66857-1 MSD

Matrix: Drinking Water

Analysis Batch: 62073

Client Sample ID: MOANALUA WELLS

Prep Type: Total/NA

Prep Batch: 61498

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD	
	Result	Qualifier	Added	Result	Qualifier				Limits			Limit
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		60.1	57.8		ng/L		96	70 - 130	2	30	
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		60.1	51.2		ng/L		85	70 - 130	3	30	
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		60.1	63.7		ng/L		106	70 - 130	3	30	
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		60.1	54.1		ng/L		90	70 - 130	2	30	
Perfluoropentanoic acid (PFPeA)	<2.0		60.1	57.9		ng/L		95	70 - 130	4	30	
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		60.1	56.2		ng/L		93	70 - 130	3	30	
Perfluoropentanesulfonic acid (PFPeS)	<2.0		60.1	55.9		ng/L		93	70 - 130	3	30	
Isotope Dilution	MSD	MSD	Limits									
	%Recovery	Qualifier		Unit	D	%Rec	Limits	RPD	Limit			
13C3 HFPO-DA	82		50 - 200									
13C6 PFDA	92		50 - 200									
13C5 PFHxA	89		50 - 200									
13C4 PFHpA	91		50 - 200									
13C8 PFOA	94		50 - 200									
13C9 PFNA	99		50 - 200									
13C7 PFUnA	89		50 - 200									
13C2 PFDoA	89		50 - 200									
13C4 PFBA	101		50 - 200									
13C5 PFPeA	113		50 - 200									
13C3 PFBS	100		50 - 200									
13C3 PFHxS	101		50 - 200									
13C8 PFOS	100		50 - 200									
13C2-4:2-FTS	102		50 - 200									
13C2-6:2-FTS	106		50 - 200									
13C2-8:2-FTS	106		50 - 200									

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

Lab Sample ID: MBL 380-59976/23-A

Matrix: Water

Analysis Batch: 60298

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 59976

Analyte	MBL	MBL	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		10/18/23 08:22	10/21/23 04:36	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		10/18/23 08:22	10/21/23 04:36	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		10/18/23 08:22	10/21/23 04:36	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<0.58		2.0	ng/L		10/18/23 08:22	10/21/23 04:36	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<0.42		2.0	ng/L		10/18/23 08:22	10/21/23 04:36	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		10/18/23 08:22	10/21/23 04:36	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		10/18/23 08:22	10/21/23 04:36	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		10/18/23 08:22	10/21/23 04:36	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		10/18/23 08:22	10/21/23 04:36	1

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-66857-1

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

Lab Sample ID: MBL 380-59976/23-A

Matrix: Water

Analysis Batch: 60298

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 59976

Analyte	MBL	MBL	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		10/18/23 08:22	10/21/23 04:36	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		10/18/23 08:22	10/21/23 04:36	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		10/18/23 08:22	10/21/23 04:36	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		10/18/23 08:22	10/21/23 04:36	1
Perfluorotetradecanoic acid (PFTA)	<0.54		2.0	ng/L		10/18/23 08:22	10/21/23 04:36	1
Perfluorotridecanoic acid (PFTTrDA)	<0.36		2.0	ng/L		10/18/23 08:22	10/21/23 04:36	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0	ng/L		10/18/23 08:22	10/21/23 04:36	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0	ng/L		10/18/23 08:22	10/21/23 04:36	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		10/18/23 08:22	10/21/23 04:36	1

Surrogate	MBL	MBL	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
d5-NEtFOSAA	89		70 - 130	10/18/23 08:22	10/21/23 04:36	1
13C2 PFHxA	107		70 - 130	10/18/23 08:22	10/21/23 04:36	1
13C2 PFDA	98		70 - 130	10/18/23 08:22	10/21/23 04:36	1
13C3-GenX	92		70 - 130	10/18/23 08:22	10/21/23 04:36	1

Lab Sample ID: LCS 380-59976/25-A

Matrix: Water

Analysis Batch: 60298

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 59976

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	25.1	27.0		ng/L		108	70 - 130
Perfluorooctanesulfonic acid (PFOS)	23.2	25.6		ng/L		110	70 - 130
Perfluoroundecanoic acid (PFUnA)	25.1	26.2		ng/L		105	70 - 130
N-methylperfluorooctanesulfonamide-1,1-diacetic acid (NMeFOSAA)	25.1	25.2		ng/L		100	70 - 130
N-ethylperfluorooctanesulfonamide-1,1-diacetic acid (NEtFOSAA)	25.1	24.6		ng/L		98	70 - 130
Perfluorohexanoic acid (PFHxA)	25.1	27.5		ng/L		110	70 - 130
Perfluorododecanoic acid (PFDoA)	25.1	24.9		ng/L		99	70 - 130
Perfluorooctanoic acid (PFOA)	25.1	27.7		ng/L		110	70 - 130
Perfluorodecanoic acid (PFDA)	25.1	27.3		ng/L		109	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	22.9	25.7		ng/L		112	70 - 130
Perfluorobutanesulfonic acid (PFBS)	22.2	23.7		ng/L		107	70 - 130
Perfluoroheptanoic acid (PFHpA)	25.1	26.4		ng/L		105	70 - 130
Perfluorononanoic acid (PFNA)	25.1	28.0		ng/L		112	70 - 130
Perfluorotetradecanoic acid (PFTA)	25.1	25.9		ng/L		103	70 - 130
Perfluorotridecanoic acid (PFTTrDA)	25.1	24.7		ng/L		99	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	23.5	25.4		ng/L		108	70 - 130

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QC Sample Results

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

Job ID: 380-66857-1

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

Lab Sample ID: LCS 380-59976/25-A

Matrix: Water

Analysis Batch: 60298

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 59976

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	23.7	24.0		ng/L		101	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	23.7	24.6		ng/L		104	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
d5-NEtFOSAA	97		70 - 130				
13C2 PFHxA	110		70 - 130				
13C2 PFDA	109		70 - 130				
13C3-GenX	102		70 - 130				

Lab Sample ID: LCSD 380-59976/26-A

Matrix: Water

Analysis Batch: 60298

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 59976

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	25.1	22.8		ng/L		91	70 - 130	17	30
Perfluorooctanesulfonic acid (PFOS)	23.2	25.1		ng/L		108	70 - 130	2	30
Perfluoroundecanoic acid (PFUnA)	25.1	25.6		ng/L		102	70 - 130	2	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	25.1	24.3		ng/L		97	70 - 130	4	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	25.1	24.1		ng/L		96	70 - 130	2	30
Perfluorohexanoic acid (PFHxA)	25.1	25.1		ng/L		100	70 - 130	9	30
Perfluorododecanoic acid (PFDoA)	25.1	23.9		ng/L		95	70 - 130	4	30
Perfluorooctanoic acid (PFOA)	25.1	26.5		ng/L		106	70 - 130	4	30
Perfluorodecanoic acid (PFDA)	25.1	25.8		ng/L		103	70 - 130	6	30
Perfluorohexanesulfonic acid (PFHxS)	22.9	25.1		ng/L		110	70 - 130	2	30
Perfluorobutanesulfonic acid (PFBS)	22.2	23.9		ng/L		108	70 - 130	1	30
Perfluoroheptanoic acid (PFHpA)	25.1	24.2		ng/L		97	70 - 130	9	30
Perfluorononanoic acid (PFNA)	25.1	26.1		ng/L		104	70 - 130	7	30
Perfluorotetradecanoic acid (PFTA)	25.1	24.2		ng/L		97	70 - 130	7	30
Perfluorotridecanoic acid (PFTrDA)	25.1	23.6		ng/L		94	70 - 130	5	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	23.4	24.3		ng/L		104	70 - 130	4	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	23.7	23.7		ng/L		100	70 - 130	1	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	23.7	22.7		ng/L		96	70 - 130	8	30

QC Sample Results

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

Job ID: 380-66857-1

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

Lab Sample ID: LCSD 380-59976/26-A

Matrix: Water

Analysis Batch: 60298

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 59976

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
d5-NEtFOSAA	96		70 - 130
13C2 PFHxA	101		70 - 130
13C2 PFDA	101		70 - 130
13C3-GenX	94		70 - 130

Lab Sample ID: MRL 380-59976/24-A

Matrix: Water

Analysis Batch: 60298

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 59976

Analyte	Spike Added	MRL	MRL	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	1.59	J	ng/L		80	50 - 150
Perfluorooctanesulfonic acid (PFOS)	1.85	1.99	J	ng/L		108	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	1.83	J	ng/L		91	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	1.79	J	ng/L		89	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	1.69	J	ng/L		84	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	1.79	J	ng/L		89	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	1.77	J	ng/L		88	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	1.93	J	ng/L		96	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	1.89	J	ng/L		95	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	1.83	1.88	J	ng/L		103	50 - 150
Perfluorobutanesulfonic acid (PFBS)	1.77	1.66	J	ng/L		94	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	1.83	J	ng/L		91	50 - 150
Perfluorononanoic acid (PFNA)	2.00	1.89	J	ng/L		95	50 - 150
Perfluorotetradecanoic acid (PFTA)	2.00	1.89	J	ng/L		94	50 - 150
Perfluorotridecanoic acid (PFTrDA)	2.00	1.75	J	ng/L		88	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	1.87	1.85	J	ng/L		99	50 - 150
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid(11Cl-PF3OUdS)	1.89	1.80	J	ng/L		95	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.89	1.66	J	ng/L		88	50 - 150

Surrogate	MRL		Limits
	%Recovery	Qualifier	
d5-NEtFOSAA	88		70 - 130
13C2 PFHxA	96		70 - 130
13C2 PFDA	98		70 - 130
13C3-GenX	85		70 - 130

QC Sample Results

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

Job ID: 380-66857-1

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

Lab Sample ID: 380-66846-L-1-A MSD

Matrix: Water

Analysis Batch: 60298

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 59976

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		Limit
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		25.1	26.8		ng/L		107	70 - 130	12	30
Perfluorooctanesulfonic acid (PFOS)	<2.0		23.2	24.9		ng/L		107	70 - 130	4	30
Perfluoroundecanoic acid (PFUnA)	<2.0		25.1	26.7		ng/L		106	70 - 130	2	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		25.1	24.6		ng/L		98	70 - 130	4	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		25.1	24.3		ng/L		97	70 - 130	9	30
Perfluorohexanoic acid (PFHxA)	<2.0		25.1	26.9		ng/L		105	70 - 130	5	30
Perfluorododecanoic acid (PFDoA)	<2.0		25.1	25.0		ng/L		100	70 - 130	1	30
Perfluorooctanoic acid (PFOA)	<2.0		25.1	26.5		ng/L		103	70 - 130	8	30
Perfluorodecanoic acid (PFDA)	<2.0		25.1	27.2		ng/L		108	70 - 130	4	30
Perfluorohexanesulfonic acid (PFHxS)	<2.0		22.9	24.9		ng/L		105	70 - 130	4	30
Perfluorobutanesulfonic acid (PFBS)	<2.0		22.2	23.4		ng/L		104	70 - 130	3	30
Perfluoroheptanoic acid (PFHpA)	<2.0		25.1	26.7		ng/L		106	70 - 130	8	30
Perfluorononanoic acid (PFNA)	<2.0		25.1	27.7		ng/L		110	70 - 130	4	30
Perfluorotetradecanoic acid (PFTA)	<2.0		25.1	23.2		ng/L		92	70 - 130	4	30
Perfluorotridecanoic acid (PFTrDA)	<2.0		25.1	25.1		ng/L		100	70 - 130	0	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		23.5	25.7		ng/L		109	70 - 130	2	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		23.7	24.0		ng/L		101	70 - 130	4	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		23.7	25.4		ng/L		107	70 - 130	16	30

Surrogate	MSD %Recovery	MSD Qualifier	Limits
d5-NEtFOSAA	98		70 - 130
13C2 PFHxA	115		70 - 130
13C2 PFDA	109		70 - 130
13C3-GenX	103		70 - 130

Lab Sample ID: 380-66846-M-1-A MS

Matrix: Water

Analysis Batch: 60298

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 59976

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		Limit
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		25.1	23.8		ng/L		95	70 - 130		
Perfluorooctanesulfonic acid (PFOS)	<2.0		23.2	25.8		ng/L		111	70 - 130		
Perfluoroundecanoic acid (PFUnA)	<2.0		25.1	26.1		ng/L		104	70 - 130		
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		25.1	23.8		ng/L		95	70 - 130		

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QC Sample Results

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

Job ID: 380-66857-1

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

Lab Sample ID: 380-66846-M-1-A MS
 Matrix: Water
 Analysis Batch: 60298

Client Sample ID: Matrix Spike
 Prep Type: Total/NA
 Prep Batch: 59976

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
N-ethylperfluorooctanesulfonami doacetic acid (NEtFOSAA)	<2.0		25.1	22.3		ng/L		89	70 - 130
Perfluorohexanoic acid (PFHxA)	<2.0		25.1	25.6		ng/L		100	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		25.1	25.3		ng/L		101	70 - 130
Perfluorooctanoic acid (PFOA)	<2.0		25.1	24.5		ng/L		96	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		25.1	26.0		ng/L		104	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	<2.0		22.9	25.8		ng/L		110	70 - 130
Perfluorobutanesulfonic acid (PFBS)	<2.0		22.2	24.1		ng/L		107	70 - 130
Perfluoroheptanoic acid (PFHpA)	<2.0		25.1	24.7		ng/L		98	70 - 130
Perfluorononanoic acid (PFNA)	<2.0		25.1	26.6		ng/L		106	70 - 130
Perfluorotetradecanoic acid (PFTA)	<2.0		25.1	24.1		ng/L		96	70 - 130
Perfluorotridecanoic acid (PFTrDA)	<2.0		25.1	25.0		ng/L		99	70 - 130
9-Chlorohexadecafluoro-3-oxan onane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		23.5	26.2		ng/L		111	70 - 130
11-Chloroeicosafluoro-3-oxaund ecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		23.7	24.8		ng/L		105	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		23.7	21.6		ng/L		91	70 - 130
		MS MS							
Surrogate	%Recovery	Qualifier	Limits						
d5-NEtFOSAA	88		70 - 130						
13C2 PFHxA	101		70 - 130						
13C2 PFDA	104		70 - 130						
13C3-GenX	94		70 - 130						

QC Association Summary

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

Job ID: 380-66857-1

GC/MS Semi VOA

Prep Batch: 59411

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-66857-1	MOANALUA WELLS	Total/NA	Drinking Water	525.2	

Analysis Batch: 59651

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-66857-1	MOANALUA WELLS	Total/NA	Drinking Water	525.2	59411

LCMS

Prep Batch: 59976

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-66857-1	MOANALUA WELLS	Total/NA	Drinking Water	537.1 DW	
380-66857-3	FB MOANALUA WELLS	Total/NA	Water	537.1 DW	
MBL 380-59976/23-A	Method Blank	Total/NA	Water	537.1 DW	
LCS 380-59976/25-A	Lab Control Sample	Total/NA	Water	537.1 DW	
LCSD 380-59976/26-A	Lab Control Sample Dup	Total/NA	Water	537.1 DW	
MRL 380-59976/24-A	Lab Control Sample	Total/NA	Water	537.1 DW	
380-66846-L-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	537.1 DW	
380-66846-M-1-A MS	Matrix Spike	Total/NA	Water	537.1 DW	

Analysis Batch: 60298

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-66857-1	MOANALUA WELLS	Total/NA	Drinking Water	537.1	59976
380-66857-3	FB MOANALUA WELLS	Total/NA	Water	537.1	59976
MBL 380-59976/23-A	Method Blank	Total/NA	Water	537.1	59976
LCS 380-59976/25-A	Lab Control Sample	Total/NA	Water	537.1	59976
LCSD 380-59976/26-A	Lab Control Sample Dup	Total/NA	Water	537.1	59976
MRL 380-59976/24-A	Lab Control Sample	Total/NA	Water	537.1	59976
380 66846 L 1 A M D	Matrix pike Duplicate	Total/NA	Water	537.1	59976
380-66846-M-1-A MS	Matrix Spike	Total/NA	Water	537.1	59976

Prep Batch: 61498

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-66857-1	MOANALUA WELLS	Total/NA	Drinking Water	533	
380-66857-3	FB MOANALUA WELLS	Total/NA	Water	533	
MBL 380-61498/19-A	Method Blank	Total/NA	Water	533	
LCS 380-61498/21-A	Lab Control Sample	Total/NA	Water	533	
LCSD 380-61498/22-A	Lab Control Sample Dup	Total/NA	Water	533	
MRL 380-61498/20-A	Lab Control Sample	Total/NA	Water	533	
380-66857-1 MS	MOANALUA WELLS	Total/NA	Drinking Water	533	
380-66857-1 MSD	MOANALUA WELLS	Total/NA	Drinking Water	533	

Analysis Batch: 62073

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-66857-1	MOANALUA WELLS	Total/NA	Drinking Water	533	61498
380-66857-3	FB MOANALUA WELLS	Total/NA	Water	533	61498
MBL 380-61498/19-A	Method Blank	Total/NA	Water	533	61498
LCS 380-61498/21-A	Lab Control Sample	Total/NA	Water	533	61498
LCSD 380-61498/22-A	Lab Control Sample Dup	Total/NA	Water	533	61498
MRL 380-61498/20-A	Lab Control Sample	Total/NA	Water	533	61498
380-66857-1 MS	MOANALUA WELLS	Total/NA	Drinking Water	533	61498
380-66857-1 MSD	MOANALUA WELLS	Total/NA	Drinking Water	533	61498

Lab Chronicle

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

Job ID: 380-66857-1

Client Sample ID: MOANALUA WELLS

Lab Sample ID: 380-66857-1

Date Collected: 10/10/23 12:00

Matrix: Drinking Water

Date Received: 10/12/23 10:33

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	525.2			59411	N8NE	EA POM	10/13/23 19:54
Total/NA	Analysis	525.2		1	59651	Q8LA	EA POM	10/16/23 17:50
Total/NA	Prep	533			61498	T2EP	EA POM	10/29/23 12:52
Total/NA	Analysis	533		1	62073	R6YA	EA POM	11/02/23 00:03
Total/NA	Prep	537.1 DW			59976	U7RS	EA POM	10/18/23 08:22
Total/NA	Analysis	537.1		1	60298	R6YA	EA POM	10/21/23 08:33

Client Sample ID: FB MOANALUA WELLS

Lab Sample ID: 380-66857-3

Date Collected: 10/10/23 12:00

Matrix: Water

Date Received: 10/12/23 10:33

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			61498	T2EP	EA POM	10/29/23 12:52
Total/NA	Analysis	533		1	62073	R6YA	EA POM	11/02/23 02:11
Total/NA	Prep	537.1 DW			59976	U7RS	EA POM	10/18/23 08:22
Total/NA	Analysis	537.1		1	60298	R6YA	EA POM	10/21/23 08:43

Laboratory References:

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

Accreditation/Certification Summary

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

Job ID: 380-66857-1

Laboratory: Eurofins Eaton Analytical Pomona

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

Authority	Program	Identification Number	Expiration Date
Hawaii	State	CA00006	01-31-24

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

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

Accreditation/Certification Summary

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

Job ID: 380-66857-1

Laboratory: Eurofins Eaton Analytical Pomona (Continued)

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

Authority	Program	Identification Number	Expiration Date
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
525.2	525.2	Drinking Water	Malathion
525.2	525.2	Drinking Water	Molinate
525.2	525.2	Drinking Water	Naphthalene
525.2	525.2	Drinking Water	Parathion
525.2	525.2	Drinking Water	Pendimethalin (Penoxaline)
525.2	525.2	Drinking Water	Phenanthrene
525.2	525.2	Drinking Water	Pyrene
525.2	525.2	Drinking Water	Terbacil
525.2	525.2	Drinking Water	Terbutylazine
525.2	525.2	Drinking Water	Thiobencarb
525.2	525.2	Drinking Water	Total Permethrin (mixed isomers)
525.2	525.2	Drinking Water	trans-Nonachlor
525.2	525.2	Drinking Water	Trifluralin
533	533	Drinking Water	11-Chloroeicosafiuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)
533	533	Drinking Water	1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)
533	533	Drinking Water	1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)
533	533	Drinking Water	1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)
533	533	Drinking Water	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)
533	533	Drinking Water	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)
533	533	Drinking Water	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)
533	533	Drinking Water	Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)
533	533	Drinking Water	Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)
533	533	Drinking Water	Perfluoro-3-methoxypropanoic acid (PFMPA)
533	533	Drinking Water	Perfluoro-4-methoxybutanoic acid (PFMBA)
533	533	Drinking Water	Perfluorobutanoic acid (PFBA)
533	533	Drinking Water	Perfluoroheptanesulfonic acid (PFHpS)
533	533	Drinking Water	Perfluoropentanesulfonic acid (PFPeS)
533	533	Drinking Water	Perfluoropentanoic acid (PFPeA)
533	533	Water	11-Chloroeicosafiuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)
533	533	Water	1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)
533	533	Water	1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)
533	533	Water	1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)
533	533	Water	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)
533	533	Water	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)

Accreditation/Certification Summary

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

Job ID: 380-66857-1

Laboratory: Eurofins Eaton Analytical Pomona (Continued)

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

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

Method Summary

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

Job ID: 380-66857-1

Method	Method Description	Protocol	Laboratory
525.2	Semivolatile Organic Compounds (GC/MS)	EPA	EA POM
533	Perfluorinated and Polyfluorinated Alkyl Substances in Drinking Water	EPA	EA POM
537.1	Perfluorinated Alkyl Acids (LC/MS)	EPA	EA POM
525.2	Extraction of Semivolatile Compounds	EPA	EA POM
533	Extraction of Perfluorinated and Polyfluorinated Alkyl Acids	EPA	EA POM
537.1 DW	Extraction of Perfluorinated Alkyl Acids	EPA	EA POM

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

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



Sample Summary

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

Job ID: 380-66857-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	PWSID Number
380-66857-1	MOANALUA WELLS	Drinking Water	10/10/23 12:00	10/12/23 10:33	HI0000331
380-66857-3	FB MOANALUA WELLS	Water	10/10/23 12:00	10/12/23 10:33	HI0000331

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- 7
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- 17

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

Chain of Custody Record



Client Information Client Contact: Dr. Ron Fenstermacher Company: City and County of Honolulu Address: 630 South Beretania St. Chemistry Lab City: Honolulu State, Zip: Hawaii 96843 Phone: 808-748-5841 Email: RFENSTERMACHER@hbws.org Project Name: RED HILL/HBWS Sites Event Desc: RUSH Weekly Red Hill Site: Hawaii		Sampler: Ryan Green Lab PM: Arada, Rachelle E-Mail: Rachelle.Arada@et.eurofins.com Phone: 808-748-5840 PWSID:		Camer Tracking No(s): State of Origin: HI Page#: Page 1 of 1 Job #:		COC No: Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Archlor H - Ascorbic Acid I - Ice Water J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - Ni(NO2) P - Na2SO4 Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)	
Analysis Requested Due Date Requested: TAT Requested (days): Standard Compliance Project: <input type="checkbox"/> Yes <input type="checkbox"/> No PO #: C20525101 exp 05312023 WO #: Project #: 38001111 SSO#:		SUBCONTRACT - 625 PAH Physis LL (EAL) + TICS SUBCONTRACT - 6015 Diesel LL (EAL) and Motor Oil SUBCONTRACT - (MOD) 525 plus Plus TICS SUBCONTRACT - 6015 Gas (Purgeable) LL (EAL) SUBCONTRACT - 6015 Gas (Purgeable) LL (EAL)		Total Number of Containers:		Special Instructions/Note:	
Sample Identification HALAWA WELLS PUMP MOANALUA WELLS TB HALAWA WELLS PUMP TB MOANALUA WELLS		Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> TICS RA RA RA RA		Matrix (W=water, S=sediment, O=soil, G=grab, T=tissue, A=air) W W W W		Sample Type (C=Comp, G=grab) G G G G	
Sample Date 10/10/23 10/10/23 10/10/23 10/10/23		Sample Time 11:06 12:00 1:00 1:00		Preservation Code: G G G G		Special Instructions/Note: samples are retained longer than 1 month Return To Client <input type="checkbox"/> Archive For <input type="checkbox"/> Months Disposal By Lab <input type="checkbox"/>	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested I, II, III, IV, Other (specify)		Date 10/11/23 12:00		Date/Time 10/12/2023 10:33 10:33		Method of Shipment: FED Ex (3) 7337 1009 7457 7337 1009 7435 7337 1009 7446	
Empty Kit Relinquished by Relinquished by Relinquished by Relinquished by		Received by: Received by: Received by:		Date/Time 10/11/23 12:00 10:33 10:33		Company HBWS Company Company	
Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: (75A) 62-FREZ 008-01-07-05-01-04-03-10-01-39		Date/Time 11/13/2023		Company	



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

Chain of Custody Record

eurofins Environment Testing
 America

Client Information Client Contact: Dr. Ron Fenstemacher Company: City and County of Honolulu Address: 630 South Beretania St. Chemistry Lab City: Honolulu State, Zip: Hawaii 96843 Phone: 808-748-5841 Email: RFENSTEMACHER@hbws.org Project Name: RED HILL/HBWS Sites Event Desc. RUSH Weekly Red Hill Site: Hawaii		Lab PM: Arada, Rachelle E-Mail: Rachelle.Arada@et.eurofins.com Camer Tracking No(s): State of Origin: HI Page: Page 1 of 1 Job #:	
Due Date Requested: TAT Requested (days): Standard Compliance Project: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No PO #: C20525101 exp 05312023 WO #: Project #: 38001111 SSOM#:		Analysis Requested Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> 637.1_DW_PREC - 637.1 Full List <input checked="" type="checkbox"/> 633 - All Analytes <input checked="" type="checkbox"/> Total Number of Containers: <input checked="" type="checkbox"/>	
Sample Identification Sample Date: 10/10/23 Sample Time: 11:00 Sample Type (C=Comp, G=Grab): G Matrix (W=water, S=solid, O=water/oil, BT=TISSUE, A=AIR): W		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Antichlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - NCA W - pH 4.5 Y - Iznria Z - other (specify)	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological 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 type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months Special Instructions/QC Requirements:	
Empty Kit Relinquished by: Ryan W. Reed Relinquished by: Ryan W. Reed Relinquished by:		Date/Time: 10/11/23 12:00 Date/Time: 10/12/2023 10:33 Date/Time:	
Relinquished by: Ryan W. Reed Relinquished by:		Method of Shipment: FED EX Date/Time: 10/12/2023 10:33 Date/Time:	
Relinquished by:		Date/Time:	
Cooler Temperature(s) °C and Other Remarks: (75)A (6E) FROZEN @ 0.5 @ 1:07 (60)5 @ 1:04 (3)40 @ 1:39			



Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-66857-1

Login Number: 66857

List Source: Eurofins Eaton Analytical Pomona

List Number: 1

Creator: Elyas, Matthew

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	

