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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

380-58282-1

Eurofins Eaton Analytical Pomona

Job Notes

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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: 380-58282-1

Qualifiers

GC/MS Semi VOA

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

GC/MS Semi VOA TICs

Qualifier	Qualifier Description
J	Indicates an Estimated Value for TICs
N	Presumptive evidence of material.
T	Result is a tentatively identified compound (TIC) and an estimated value.

LCMS

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.
*3	ISTD response or retention time outside acceptable limits.
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

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: 380-58282-1

Job ID: 380-58282-1

Laboratory: Eurofins Eaton Analytical Pomona

Narrative

**Job Narrative
380-58282-1**

Comments

No additional comments.

Receipt

The samples were received on 8/9/2023 10:10 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.4° C.

GC/MS Semi VOA

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

LCMS

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

Organic Prep

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

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Detection Summary

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

Job ID: 380-58282-1

Client Sample ID: MOANALUA WELLS
PWSID Number: HI0000331

Lab Sample ID: 380-58282-1

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.2		2.0	ng/L	1		533	Total/NA

Client Sample ID: FB: MOANALUA WELLS

Lab Sample ID: 380-58282-2

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: 380-58282-1

Client Sample ID: MOANALUA WELLS

Lab Sample ID: 380-58282-1

Date Collected: 08/07/23 11:00

Matrix: Drinking Water

Date Received: 08/09/23 10:10

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	<0.097		0.097	ug/L		08/11/23 16:29	08/14/23 13:15	1
2,4'-DDD	<0.097		0.097	ug/L		08/11/23 16:29	08/14/23 13:15	1
2,4'-DDE	<0.097		0.097	ug/L		08/11/23 16:29	08/14/23 13:15	1
2,4'-DDT	<0.097		0.097	ug/L		08/11/23 16:29	08/14/23 13:15	1
2,4-Dinitrotoluene	<0.097		0.097	ug/L		08/11/23 16:29	08/14/23 13:15	1
2,6-Dinitrotoluene	<0.097		0.097	ug/L		08/11/23 16:29	08/14/23 13:15	1
2-Methylnaphthalene	<0.097		0.097	ug/L		08/11/23 16:29	08/14/23 13:15	1
4,4'-DDD	<0.097		0.097	ug/L		08/11/23 16:29	08/14/23 13:15	1
4,4'-DDE	<0.097		0.097	ug/L		08/11/23 16:29	08/14/23 13:15	1
4,4'-DDT	<0.097		0.097	ug/L		08/11/23 16:29	08/14/23 13:15	1
Acenaphthene	<0.097		0.097	ug/L		08/11/23 16:29	08/14/23 13:15	1
Acenaphthylene	<0.097		0.097	ug/L		08/11/23 16:29	08/14/23 13:15	1
Acetochlor	<0.097	*+	0.097	ug/L		08/11/23 16:29	08/14/23 13:15	1
Alachlor	<0.049		0.049	ug/L		08/11/23 16:29	08/14/23 13:15	1
alpha-BHC	<0.097		0.097	ug/L		08/11/23 16:29	08/14/23 13:15	1
alpha-Chlordane	<0.049		0.049	ug/L		08/11/23 16:29	08/14/23 13:15	1
Anthracene	<0.019		0.019	ug/L		08/11/23 16:29	08/14/23 13:15	1
Atrazine	<0.049		0.049	ug/L		08/11/23 16:29	08/14/23 13:15	1
Benz(a)anthracene	<0.049		0.049	ug/L		08/11/23 16:29	08/14/23 13:15	1
Benzo[a]pyrene	<0.019		0.019	ug/L		08/11/23 16:29	08/14/23 13:15	1
Benzo[b]fluoranthene	<0.019		0.019	ug/L		08/11/23 16:29	08/14/23 13:15	1
Benzo[g,h,i]perylene	<0.049		0.049	ug/L		08/11/23 16:29	08/14/23 13:15	1
Benzo[k]fluoranthene	<0.019		0.019	ug/L		08/11/23 16:29	08/14/23 13:15	1
beta-BHC	<0.097		0.097	ug/L		08/11/23 16:29	08/14/23 13:15	1
Bis(2-ethylhexyl) phthalate	<0.58		0.58	ug/L		08/11/23 16:29	08/14/23 13:15	1
Bromacil	<0.097		0.097	ug/L		08/11/23 16:29	08/14/23 13:15	1
Butachlor	<0.049		0.049	ug/L		08/11/23 16:29	08/14/23 13:15	1
Butylbenzylphthalate	<0.49		0.49	ug/L		08/11/23 16:29	08/14/23 13:15	1
Chlorobenzilate	<0.097		0.097	ug/L		08/11/23 16:29	08/14/23 13:15	1
Chloroneb	<0.097		0.097	ug/L		08/11/23 16:29	08/14/23 13:15	1
Chlorothalonil (Draconil, Bravo)	<0.097		0.097	ug/L		08/11/23 16:29	08/14/23 13:15	1
Chlorpyrifos	<0.049		0.049	ug/L		08/11/23 16:29	08/14/23 13:15	1
Chrysene	<0.019		0.019	ug/L		08/11/23 16:29	08/14/23 13:15	1
delta-BHC	<0.097		0.097	ug/L		08/11/23 16:29	08/14/23 13:15	1
Di(2-ethylhexyl)adipate	<0.58		0.58	ug/L		08/11/23 16:29	08/14/23 13:15	1
Dibenz(a,h)anthracene	<0.049		0.049	ug/L		08/11/23 16:29	08/14/23 13:15	1
Diclorvos (DDVP)	<0.049	^3+	0.049	ug/L		08/11/23 16:29	08/14/23 13:15	1
Dieldrin	<0.19		0.19	ug/L		08/11/23 16:29	08/14/23 13:15	1
Diethylphthalate	<0.49		0.49	ug/L		08/11/23 16:29	08/14/23 13:15	1
Dimethylphthalate	<0.49		0.49	ug/L		08/11/23 16:29	08/14/23 13:15	1
Di-n-butyl phthalate	<0.97		0.97	ug/L		08/11/23 16:29	08/14/23 13:15	1
Di-n-octyl phthalate	<0.097		0.097	ug/L		08/11/23 16:29	08/14/23 13:15	1
Endosulfan I (Alpha)	<0.097		0.097	ug/L		08/11/23 16:29	08/14/23 13:15	1
Endosulfan II (Beta)	<0.097		0.097	ug/L		08/11/23 16:29	08/14/23 13:15	1
Endosulfan sulfate	<0.097		0.097	ug/L		08/11/23 16:29	08/14/23 13:15	1
Endrin	<0.097		0.097	ug/L		08/11/23 16:29	08/14/23 13:15	1
Endrin aldehyde	<0.097		0.097	ug/L		08/11/23 16:29	08/14/23 13:15	1
EPTC	<0.097		0.097	ug/L		08/11/23 16:29	08/14/23 13:15	1
Fluoranthene	<0.097		0.097	ug/L		08/11/23 16:29	08/14/23 13:15	1

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Client Sample Results

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

Job ID: 380-58282-1

Client Sample ID: MOANALUA WELLS

Lab Sample ID: 380-58282-1

Date Collected: 08/07/23 11:00

Matrix: Drinking Water

Date Received: 08/09/23 10:10

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Fluorene	<0.049		0.049	ug/L		08/11/23 16:29	08/14/23 13:15	1
gamma-Chlordane	<0.049		0.049	ug/L		08/11/23 16:29	08/14/23 13:15	1
Heptachlor	<0.039		0.039	ug/L		08/11/23 16:29	08/14/23 13:15	1
Heptachlor epoxide (isomer B)	<0.049		0.049	ug/L		08/11/23 16:29	08/14/23 13:15	1
Hexachlorobenzene	<0.049		0.049	ug/L		08/11/23 16:29	08/14/23 13:15	1
Hexachlorocyclopentadiene	<0.049		0.049	ug/L		08/11/23 16:29	08/14/23 13:15	1
Indeno[1,2,3-cd]pyrene	<0.049		0.049	ug/L		08/11/23 16:29	08/14/23 13:15	1
Isophorone	<0.49		0.49	ug/L		08/11/23 16:29	08/14/23 13:15	1
Lindane	<0.039		0.039	ug/L		08/11/23 16:29	08/14/23 13:15	1
Malathion	<0.097		0.097	ug/L		08/11/23 16:29	08/14/23 13:15	1
Methoxychlor	<0.097		0.097	ug/L		08/11/23 16:29	08/14/23 13:15	1
Metolachlor	<0.049		0.049	ug/L		08/11/23 16:29	08/14/23 13:15	1
Molinate	<0.097		0.097	ug/L		08/11/23 16:29	08/14/23 13:15	1
Naphthalene	<0.29		0.29	ug/L		08/11/23 16:29	08/14/23 13:15	1
Parathion	<0.097		0.097	ug/L		08/11/23 16:29	08/14/23 13:15	1
Pendimethalin (Penoxaline)	<0.097		0.097	ug/L		08/11/23 16:29	08/14/23 13:15	1
Phenanthrene	<0.039		0.039	ug/L		08/11/23 16:29	08/14/23 13:15	1
Propachlor	<0.049		0.049	ug/L		08/11/23 16:29	08/14/23 13:15	1
Pyrene	<0.049		0.049	ug/L		08/11/23 16:29	08/14/23 13:15	1
Simazine	<0.049		0.049	ug/L		08/11/23 16:29	08/14/23 13:15	1
Terbacil	<0.097		0.097	ug/L		08/11/23 16:29	08/14/23 13:15	1
Terbutylazine	<0.097		0.097	ug/L		08/11/23 16:29	08/14/23 13:15	1
Thiobencarb	<0.19		0.19	ug/L		08/11/23 16:29	08/14/23 13:15	1
Total Permethrin (mixed isomers)	<0.19		0.19	ug/L		08/11/23 16:29	08/14/23 13:15	1
trans-Nonachlor	<0.049		0.049	ug/L		08/11/23 16:29	08/14/23 13:15	1
Trifluralin	<0.097		0.097	ug/L		08/11/23 16:29	08/14/23 13:15	1

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Tentatively Identified Compound	None		ug/L			N/A	08/11/23 16:29	08/14/23 13:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	98		70 - 130	08/11/23 16:29	08/14/23 13:15	1
Perylene-d12	89		70 - 130	08/11/23 16:29	08/14/23 13:15	1
Triphenylphosphate	95		70 - 130	08/11/23 16:29	08/14/23 13:15	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafiuoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		08/30/23 14:25	09/01/23 12:20	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		08/30/23 14:25	09/01/23 12:20	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		08/30/23 14:25	09/01/23 12:20	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		08/30/23 14:25	09/01/23 12:20	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		08/30/23 14:25	09/01/23 12:20	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		08/30/23 14:25	09/01/23 12:20	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		08/30/23 14:25	09/01/23 12:20	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		08/30/23 14:25	09/01/23 12:20	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		08/30/23 14:25	09/01/23 12:20	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		08/30/23 14:25	09/01/23 12:20	1

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Client Sample Results

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

Job ID: 380-58282-1

Client Sample ID: MOANALUA WELLS

Lab Sample ID: 380-58282-1

Date Collected: 08/07/23 11:00

Matrix: Drinking Water

Date Received: 08/09/23 10:10

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		08/30/23 14:25	09/01/23 12:20	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		08/30/23 14:25	09/01/23 12:20	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		08/30/23 14:25	09/01/23 12:20	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		08/30/23 14:25	09/01/23 12:20	1
Perfluorobutanoic acid (PFBA)	2.2		2.0	ng/L		08/30/23 14:25	09/01/23 12:20	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		08/30/23 14:25	09/01/23 12:20	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		08/30/23 14:25	09/01/23 12:20	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		08/30/23 14:25	09/01/23 12:20	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0	*1	2.0	ng/L		08/30/23 14:25	09/01/23 12:20	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		2.0	ng/L		08/30/23 14:25	09/01/23 12:20	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		08/30/23 14:25	09/01/23 12:20	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		08/30/23 14:25	09/01/23 12:20	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		08/30/23 14:25	09/01/23 12:20	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		08/30/23 14:25	09/01/23 12:20	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		08/30/23 14:25	09/01/23 12:20	1
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	73		50 - 200			08/30/23 14:25	09/01/23 12:20	1
13C6 PFDA	84		50 - 200			08/30/23 14:25	09/01/23 12:20	1
13C5 PFHxA	89		50 - 200			08/30/23 14:25	09/01/23 12:20	1
13C4 PFHpA	86		50 - 200			08/30/23 14:25	09/01/23 12:20	1
13C8 PFOA	86		50 - 200			08/30/23 14:25	09/01/23 12:20	1
13C9 PFNA	88		50 - 200			08/30/23 14:25	09/01/23 12:20	1
13C7 PFUnA	92		50 - 200			08/30/23 14:25	09/01/23 12:20	1
13C2 PFDoA	92		50 - 200			08/30/23 14:25	09/01/23 12:20	1
13C4 PFBA	84		50 - 200			08/30/23 14:25	09/01/23 12:20	1
13C5 PFPeA	83		50 - 200			08/30/23 14:25	09/01/23 12:20	1
13C3 PFBS	92		50 - 200			08/30/23 14:25	09/01/23 12:20	1
13C3 PFHxS	94		50 - 200			08/30/23 14:25	09/01/23 12:20	1
13C8 PFOS	95		50 - 200			08/30/23 14:25	09/01/23 12:20	1
13C2-4:2-FTS	105		50 - 200			08/30/23 14:25	09/01/23 12:20	1
13C2-6:2-FTS	94		50 - 200			08/30/23 14:25	09/01/23 12:20	1
13C2-8:2-FTS	93		50 - 200			08/30/23 14:25	09/01/23 12:20	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		08/10/23 10:44	08/12/23 02:45	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		08/10/23 10:44	08/12/23 02:45	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		08/10/23 10:44	08/12/23 02:45	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		08/10/23 10:44	08/12/23 02:45	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		08/10/23 10:44	08/12/23 02:45	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-58282-1

Client Sample ID: MOANALUA WELLS

Date Collected: 08/07/23 11:00

Date Received: 08/09/23 10:10

Lab Sample ID: 380-58282-1

Matrix: Drinking Water

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		08/10/23 10:44	08/12/23 02:45	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		08/10/23 10:44	08/12/23 02:45	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		08/10/23 10:44	08/12/23 02:45	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		08/10/23 10:44	08/12/23 02:45	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		08/10/23 10:44	08/12/23 02:45	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		08/10/23 10:44	08/12/23 02:45	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		08/10/23 10:44	08/12/23 02:45	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		08/10/23 10:44	08/12/23 02:45	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		08/10/23 10:44	08/12/23 02:45	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		08/10/23 10:44	08/12/23 02:45	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		08/10/23 10:44	08/12/23 02:45	1
11-Chloroeicosafuoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		08/10/23 10:44	08/12/23 02:45	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		08/10/23 10:44	08/12/23 02:45	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	93		70 - 130			08/10/23 10:44	08/12/23 02:45	1
13C2 PFHxA	112		70 - 130			08/10/23 10:44	08/12/23 02:45	1
13C2 PFDA	106		70 - 130			08/10/23 10:44	08/12/23 02:45	1
13C3-GenX	110		70 - 130			08/10/23 10:44	08/12/23 02:45	1

Client Sample ID: FB: MOANALUA WELLS

Date Collected: 08/07/23 11:00

Date Received: 08/09/23 10:10

Lab Sample ID: 380-58282-2

Matrix: Water

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		08/25/23 12:06	08/30/23 09:08	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		08/25/23 12:06	08/30/23 09:08	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		08/25/23 12:06	08/30/23 09:08	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		08/25/23 12:06	08/30/23 09:08	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		08/25/23 12:06	08/30/23 09:08	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		08/25/23 12:06	08/30/23 09:08	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		08/25/23 12:06	08/30/23 09:08	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		08/25/23 12:06	08/30/23 09:08	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		08/25/23 12:06	08/30/23 09:08	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		08/25/23 12:06	08/30/23 09:08	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		08/25/23 12:06	08/30/23 09:08	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		08/25/23 12:06	08/30/23 09:08	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		08/25/23 12:06	08/30/23 09:08	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		08/25/23 12:06	08/30/23 09:08	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		08/25/23 12:06	08/30/23 09:08	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		08/25/23 12:06	08/30/23 09:08	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		08/25/23 12:06	08/30/23 09:08	1

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Client Sample Results

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

Job ID: 380-58282-1

Client Sample ID: FB: MOANALUA WELLS

Lab Sample ID: 380-58282-2

Date Collected: 08/07/23 11:00

Matrix: Water

Date Received: 08/09/23 10:10

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		08/25/23 12:06	08/30/23 09:08	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		08/25/23 12:06	08/30/23 09:08	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		08/25/23 12:06	08/30/23 09:08	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		08/25/23 12:06	08/30/23 09:08	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		08/25/23 12:06	08/30/23 09:08	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		08/25/23 12:06	08/30/23 09:08	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		08/25/23 12:06	08/30/23 09:08	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		08/25/23 12:06	08/30/23 09:08	1
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	55		50 - 200			08/25/23 12:06	08/30/23 09:08	1
13C6 PFDA	71		50 - 200			08/25/23 12:06	08/30/23 09:08	1
13C5 PFHxA	59		50 - 200			08/25/23 12:06	08/30/23 09:08	1
13C4 PFHpA	64		50 - 200			08/25/23 12:06	08/30/23 09:08	1
13C8 PFOA	65		50 - 200			08/25/23 12:06	08/30/23 09:08	1
13C9 PFNA	65		50 - 200			08/25/23 12:06	08/30/23 09:08	1
13C7 PFUnA	79		50 - 200			08/25/23 12:06	08/30/23 09:08	1
13C2 PFDoA	86		50 - 200			08/25/23 12:06	08/30/23 09:08	1
13C4 PFBA	64		50 - 200			08/25/23 12:06	08/30/23 09:08	1
13C5 PFPeA	62		50 - 200			08/25/23 12:06	08/30/23 09:08	1
13C3 PFBS	97		50 - 200			08/25/23 12:06	08/30/23 09:08	1
13C3 PFHxS	102		50 - 200			08/25/23 12:06	08/30/23 09:08	1
13C8 PFOS	100		50 - 200			08/25/23 12:06	08/30/23 09:08	1
13C2-4:2-FTS	100		50 - 200			08/25/23 12:06	08/30/23 09:08	1
13C2-6:2-FTS	91		50 - 200			08/25/23 12:06	08/30/23 09:08	1
13C2-8:2-FTS	85		50 - 200			08/25/23 12:06	08/30/23 09:08	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		08/10/23 10:44	08/12/23 02:55	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		08/10/23 10:44	08/12/23 02:55	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		08/10/23 10:44	08/12/23 02:55	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		08/10/23 10:44	08/12/23 02:55	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		08/10/23 10:44	08/12/23 02:55	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		08/10/23 10:44	08/12/23 02:55	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		08/10/23 10:44	08/12/23 02:55	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		08/10/23 10:44	08/12/23 02:55	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		08/10/23 10:44	08/12/23 02:55	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		08/10/23 10:44	08/12/23 02:55	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		08/10/23 10:44	08/12/23 02:55	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		08/10/23 10:44	08/12/23 02:55	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		08/10/23 10:44	08/12/23 02:55	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		08/10/23 10:44	08/12/23 02:55	1

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Client Sample Results

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

Job ID: 380-58282-1

Client Sample ID: FB: MOANALUA WELLS

Lab Sample ID: 380-58282-2

Date Collected: 08/07/23 11:00

Matrix: Water

Date Received: 08/09/23 10:10

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		08/10/23 10:44	08/12/23 02:55	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		08/10/23 10:44	08/12/23 02:55	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		08/10/23 10:44	08/12/23 02:55	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		08/10/23 10:44	08/12/23 02:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	102		70 - 130	08/10/23 10:44	08/12/23 02:55	1
13C2 PFHxA	120		70 - 130	08/10/23 10:44	08/12/23 02:55	1
13C2 PFDA	110		70 - 130	08/10/23 10:44	08/12/23 02:55	1
13C3-GenX	107		70 - 130	08/10/23 10:44	08/12/23 02:55	1

Action Limit Summary

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

Job ID: 380-58282-1

Client Sample ID: MOANALUA WELLS

Lab Sample ID: 380-58282-1

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	<0.049		ug/L	2	0.049	525.2	Total/NA
Atrazine	<0.049		ug/L	3	0.049	525.2	Total/NA
Benzo[a]pyrene	<0.019		ug/L	0.2	0.019	525.2	Total/NA
Bis(2-ethylhexyl) phthalate	<0.58		ug/L	6	0.58	525.2	Total/NA
Di(2-ethylhexyl)adipate	<0.58		ug/L	400	0.58	525.2	Total/NA
Endrin	<0.097		ug/L	2	0.097	525.2	Total/NA
Heptachlor	<0.039		ug/L	0.4	0.039	525.2	Total/NA
Heptachlor epoxide (isomer B)	<0.049		ug/L	0.2	0.049	525.2	Total/NA
Hexachlorobenzene	<0.049		ug/L	1	0.049	525.2	Total/NA
Hexachlorocyclopentadiene	<0.049		ug/L	50	0.049	525.2	Total/NA
Lindane	<0.039		ug/L	0.2	0.039	525.2	Total/NA
Methoxychlor	<0.097		ug/L	40	0.097	525.2	Total/NA
Simazine	<0.049		ug/L	4	0.049	525.2	Total/NA

Surrogate Summary

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

Job ID: 380-58282-1

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)
380-58282-1	MOANALUA WELLS	98	89	95

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

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		2NMX (70-130)	PRY (70-130)	TPP (70-130)
380-58242-O-1-A MS	Matrix Spike	97	92	100
380-58242-O-2-A DU	Duplicate	99	87	99
LCS 380-51368/23-A	Lab Control Sample	97	92	97
LCSD 380-51368/24-A	Lab Control Sample Dup	98	92	100
MB 380-51368/21-A	Method Blank	96	75	100
MRL 380-51368/22-A	Lab Control Sample	99	82	98

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)
380-58282-1	MOANALUA WELLS	93	112	106	110

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)
380-58278-E-8-A MS	Matrix Spike	81	106 *3	106 *3	108 *3
380-58278-F-8-A MSD	Matrix Spike Duplicate	83	112	110	118
380-58282-2	FB: MOANALUA WELLS	102	120	110	107
LCS 380-51152/25-A	Lab Control Sample	89	115	106	113
LCSD 380-51152/26-A	Lab Control Sample Dup	84	117	111	114
MBL 380-51152/23-A	Method Blank	93	116	109	110
MRL 380-51152/24-A	Lab Control Sample	102	121	114	105

Surrogate Summary

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

Job ID: 380-58282-1

Surrogate Legend

d5NEFOS = d5-NEtFOSAA

PFHxA = 13C2 PFHxA

PFDA = 13C2 PFDA

GenX = 13C3-GenX

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

Isotope Dilution Summary

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

Job ID: 380-58282-1

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

Matrix: Drinking Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HFPODA (50-200)	C6PFDA (50-200)	13C5PHA (50-200)	C4PFHA (50-200)	C8PFOA (50-200)	C9PFNA (50-200)	13C7PUA (50-200)	PFDaA (50-200)
380-58282-1	MOANALUA WELLS	73	84	89	86	86	88	92	92

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)
380-58282-1	MOANALUA WELLS	84	83	92	94	95	105	94	93

Surrogate Legend

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

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

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HFPODA (50-200)	C6PFDA (50-200)	13C5PHA (50-200)	C4PFHA (50-200)	C8PFOA (50-200)	C9PFNA (50-200)	13C7PUA (50-200)	PFDaA (50-200)
380-58282-2	FB: MOANALUA WELLS	55	71	59	64	65	65	79	86
380-58618-B-1-A LMS	Matrix Spike	105	74	95	88	91	81	75	77
380-58618-C-1-A LMSD	Matrix Spike Duplicate	107	97	98	98	101	97	99	96
380-59148-C-7-A MS	Matrix Spike	100	88	87	85	89	90	88	90
380-59148-D-7-A MSD	Matrix Spike Duplicate	95	84	80	80	85	88	84	88
LCS 380-53237/23-A	Lab Control Sample	104	104	104	102	105	107	107	99
LCS 380-53790/23-A	Lab Control Sample	88	89	93	92	91	92	89	92
LCSD 380-53237/24-A	Lab Control Sample Dup	106	102	106	102	104	105	107	104
LCSD 380-53790/24-A	Lab Control Sample Dup	62	85	75	71	80	82	89	93
MBL 380-53237/21-A	Method Blank	52	69	58	55	59	61	70	76
MBL 380-53790/21-A	Method Blank	79	88	98	90	92	88	86	91
MRL 380-53237/22-A	Lab Control Sample	95	93	97	98	101	93	94	93
MRL 380-53790/22-A	Lab Control Sample	86	89	97	93	93	89	87	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)
380-58282-2	FB: MOANALUA WELLS	64	62	97	102	100	100	91	85
380-58618-B-1-A LMS	Matrix Spike	98	111	95	101	103	114	100	98
380-58618-C-1-A LMSD	Matrix Spike Duplicate	102	114	97	96	100	112	96	93
380-59148-C-7-A MS	Matrix Spike	87	160	88	89	93	127	119	107

Eurofins Eaton Analytical Pomona

Isotope Dilution Summary

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

Job ID: 380-58282-1

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

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFBA (50-200)	PFPeA (50-200)	C3PFBS (50-200)	C3PFHS (50-200)	C8PFOS (50-200)	42FTS (50-200)	62FTS (50-200)	82FTS (50-200)
380-59148-D-7-A MSD	Matrix Spike Duplicate	84	158	85	90	90	137	117	118
LCS 380-53237/23-A	Lab Control Sample	98	102	101	99	103	109	99	103
LCS 380-53790/23-A	Lab Control Sample	86	90	89	89	91	94	85	89
LCSD 380-53237/24-A	Lab Control Sample Dup	106	106	101	102	104	105	102	97
LCSD 380-53790/24-A	Lab Control Sample Dup	60	66	86	89	90	91	84	86
MBL 380-53237/21-A	Method Blank	56	56	91	89	92	94	89	84
MBL 380-53790/21-A	Method Blank	91	89	94	89	88	96	85	89
MRL 380-53237/22-A	Lab Control Sample	93	93	95	97	97	94	94	89
MRL 380-53790/22-A	Lab Control Sample	89	89	91	85	92	91	90	87

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

QC Sample Results

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

Job ID: 380-58282-1

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

Lab Sample ID: MB 380-51368/21-A
Matrix: Water
Analysis Batch: 51570

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 51368

Analyte	MB	MB	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
1-Methylnaphthalene	<0.099		0.099	ug/L		08/11/23 16:29	08/14/23 10:51	1
2,4'-DDD	<0.099		0.099	ug/L		08/11/23 16:29	08/14/23 10:51	1
2,4'-DDE	<0.099		0.099	ug/L		08/11/23 16:29	08/14/23 10:51	1
2,4'-DDT	<0.099		0.099	ug/L		08/11/23 16:29	08/14/23 10:51	1
2,4-Dinitrotoluene	<0.099		0.099	ug/L		08/11/23 16:29	08/14/23 10:51	1
2,6-Dinitrotoluene	<0.099		0.099	ug/L		08/11/23 16:29	08/14/23 10:51	1
2-Methylnaphthalene	<0.099		0.099	ug/L		08/11/23 16:29	08/14/23 10:51	1
4,4'-DDD	<0.099		0.099	ug/L		08/11/23 16:29	08/14/23 10:51	1
4,4'-DDE	<0.099		0.099	ug/L		08/11/23 16:29	08/14/23 10:51	1
4,4'-DDT	<0.099		0.099	ug/L		08/11/23 16:29	08/14/23 10:51	1
Acenaphthene	<0.099		0.099	ug/L		08/11/23 16:29	08/14/23 10:51	1
Acenaphthylene	<0.099		0.099	ug/L		08/11/23 16:29	08/14/23 10:51	1
Acetochlor	<0.099		0.099	ug/L		08/11/23 16:29	08/14/23 10:51	1
Alachlor	<0.049		0.049	ug/L		08/11/23 16:29	08/14/23 10:51	1
alpha-BHC	<0.099		0.099	ug/L		08/11/23 16:29	08/14/23 10:51	1
alpha-Chlordane	<0.049		0.049	ug/L		08/11/23 16:29	08/14/23 10:51	1
Anthracene	<0.020		0.020	ug/L		08/11/23 16:29	08/14/23 10:51	1
Atrazine	<0.049		0.049	ug/L		08/11/23 16:29	08/14/23 10:51	1
Benz(a)anthracene	<0.049		0.049	ug/L		08/11/23 16:29	08/14/23 10:51	1
Benzo[a]pyrene	<0.020		0.020	ug/L		08/11/23 16:29	08/14/23 10:51	1
Benzo[b]fluoranthene	<0.020		0.020	ug/L		08/11/23 16:29	08/14/23 10:51	1
Benzo[g,h,i]perylene	<0.049		0.049	ug/L		08/11/23 16:29	08/14/23 10:51	1
Benzo[k]fluoranthene	<0.020		0.020	ug/L		08/11/23 16:29	08/14/23 10:51	1
beta-BHC	<0.099		0.099	ug/L		08/11/23 16:29	08/14/23 10:51	1
Bis(2-ethylhexyl) phthalate	<0.59		0.59	ug/L		08/11/23 16:29	08/14/23 10:51	1
Bromacil	<0.099		0.099	ug/L		08/11/23 16:29	08/14/23 10:51	1
Butachlor	<0.049		0.049	ug/L		08/11/23 16:29	08/14/23 10:51	1
Butylbenzylphthalate	<0.49		0.49	ug/L		08/11/23 16:29	08/14/23 10:51	1
Chlorobenzilate	<0.099		0.099	ug/L		08/11/23 16:29	08/14/23 10:51	1
Chloroneb	<0.099		0.099	ug/L		08/11/23 16:29	08/14/23 10:51	1
Chlorothalonil (Draconil, Bravo)	<0.099		0.099	ug/L		08/11/23 16:29	08/14/23 10:51	1
Chlorpyrifos	<0.049		0.049	ug/L		08/11/23 16:29	08/14/23 10:51	1
Chrysene	<0.020		0.020	ug/L		08/11/23 16:29	08/14/23 10:51	1
delta-BHC	<0.099		0.099	ug/L		08/11/23 16:29	08/14/23 10:51	1
Di(2-ethylhexyl)adipate	<0.59		0.59	ug/L		08/11/23 16:29	08/14/23 10:51	1
Dibenz(a,h)anthracene	<0.049		0.049	ug/L		08/11/23 16:29	08/14/23 10:51	1
Diclorvos (DDVP)	<0.049		0.049	ug/L		08/11/23 16:29	08/14/23 10:51	1
Dieldrin	<0.20		0.20	ug/L		08/11/23 16:29	08/14/23 10:51	1
Diethylphthalate	<0.49		0.49	ug/L		08/11/23 16:29	08/14/23 10:51	1
Dimethylphthalate	<0.49		0.49	ug/L		08/11/23 16:29	08/14/23 10:51	1
Di-n-butyl phthalate	<0.99		0.99	ug/L		08/11/23 16:29	08/14/23 10:51	1
Di-n-octyl phthalate	<0.099		0.099	ug/L		08/11/23 16:29	08/14/23 10:51	1
Endosulfan I (Alpha)	<0.099		0.099	ug/L		08/11/23 16:29	08/14/23 10:51	1
Endosulfan II (Beta)	<0.099		0.099	ug/L		08/11/23 16:29	08/14/23 10:51	1
Endosulfan sulfate	<0.099		0.099	ug/L		08/11/23 16:29	08/14/23 10:51	1
Endrin	<0.099		0.099	ug/L		08/11/23 16:29	08/14/23 10:51	1
Endrin aldehyde	<0.099		0.099	ug/L		08/11/23 16:29	08/14/23 10:51	1
EPTC	<0.099		0.099	ug/L		08/11/23 16:29	08/14/23 10:51	1

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QC Sample Results

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

Job ID: 380-58282-1

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

Lab Sample ID: MB 380-51368/21-A
Matrix: Water
Analysis Batch: 51570

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 51368

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoranthene	<0.099		0.099	ug/L		08/11/23 16:29	08/14/23 10:51	1
Fluorene	<0.049		0.049	ug/L		08/11/23 16:29	08/14/23 10:51	1
gamma-Chlordane	<0.049		0.049	ug/L		08/11/23 16:29	08/14/23 10:51	1
Heptachlor	<0.040		0.040	ug/L		08/11/23 16:29	08/14/23 10:51	1
Heptachlor epoxide (isomer B)	<0.049		0.049	ug/L		08/11/23 16:29	08/14/23 10:51	1
Hexachlorobenzene	<0.049		0.049	ug/L		08/11/23 16:29	08/14/23 10:51	1
Hexachlorocyclopentadiene	<0.049		0.049	ug/L		08/11/23 16:29	08/14/23 10:51	1
Indeno[1,2,3-cd]pyrene	<0.049		0.049	ug/L		08/11/23 16:29	08/14/23 10:51	1
Isophorone	<0.49		0.49	ug/L		08/11/23 16:29	08/14/23 10:51	1
Lindane	<0.040		0.040	ug/L		08/11/23 16:29	08/14/23 10:51	1
Malathion	<0.099		0.099	ug/L		08/11/23 16:29	08/14/23 10:51	1
Methoxychlor	<0.099		0.099	ug/L		08/11/23 16:29	08/14/23 10:51	1
Metolachlor	<0.049		0.049	ug/L		08/11/23 16:29	08/14/23 10:51	1
Molinate	<0.099		0.099	ug/L		08/11/23 16:29	08/14/23 10:51	1
Naphthalene	<0.30		0.30	ug/L		08/11/23 16:29	08/14/23 10:51	1
Parathion	<0.099		0.099	ug/L		08/11/23 16:29	08/14/23 10:51	1
Pendimethalin (Penoxaline)	<0.099		0.099	ug/L		08/11/23 16:29	08/14/23 10:51	1
Phenanthrene	<0.040		0.040	ug/L		08/11/23 16:29	08/14/23 10:51	1
Propachlor	<0.049		0.049	ug/L		08/11/23 16:29	08/14/23 10:51	1
Pyrene	<0.049		0.049	ug/L		08/11/23 16:29	08/14/23 10:51	1
Simazine	<0.049		0.049	ug/L		08/11/23 16:29	08/14/23 10:51	1
Terbacil	<0.099		0.099	ug/L		08/11/23 16:29	08/14/23 10:51	1
Terbutylazine	<0.099		0.099	ug/L		08/11/23 16:29	08/14/23 10:51	1
Thiobencarb	<0.20		0.20	ug/L		08/11/23 16:29	08/14/23 10:51	1
Total Permethrin (mixed isomers)	<0.20		0.20	ug/L		08/11/23 16:29	08/14/23 10:51	1
trans-Nonachlor	<0.049		0.049	ug/L		08/11/23 16:29	08/14/23 10:51	1
Trifluralin	<0.099		0.099	ug/L		08/11/23 16:29	08/14/23 10:51	1

Tentatively Identified Compound	MB Est. Result	MB Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Benzene, 1-ethyl-2-methyl-	1.77	T J N	ug/L		2.36	611-14-3	08/11/23 16:29	08/14/23 10:51	1
Phenol, 4-(1,1-dimethylpropyl)-	1.36	T J N	ug/L		3.85	80-46-6	08/11/23 16:29	08/14/23 10:51	1
n-Hexadecanoic acid	1.58	T J N	ug/L		5.80	57-10-3	08/11/23 16:29	08/14/23 10:51	1
Oleic Acid	0.855	T J N	ug/L		6.41	112-80-1	08/11/23 16:29	08/14/23 10:51	1
Octadecanoic acid	1.07	T J N	ug/L		6.48	57-11-4	08/11/23 16:29	08/14/23 10:51	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	96		70 - 130	08/11/23 16:29	08/14/23 10:51	1
Perylene-d12	75		70 - 130	08/11/23 16:29	08/14/23 10:51	1
Triphenylphosphate	100		70 - 130	08/11/23 16:29	08/14/23 10:51	1

Lab Sample ID: LCS 380-51368/23-A
Matrix: Water
Analysis Batch: 51570

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 51368

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1-Methylnaphthalene	1.98	2.02		ug/L		102	70 - 130
2,4'-DDD	1.98	2.10		ug/L		106	70 - 130
2,4'-DDE	1.98	1.99		ug/L		100	70 - 130

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QC Sample Results

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

Job ID: 380-58282-1

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

Lab Sample ID: LCS 380-51368/23-A
Matrix: Water
Analysis Batch: 51570

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 51368

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4'-DDT	1.98	2.05		ug/L		104	70 - 130
2,4-Dinitrotoluene	1.98	2.00		ug/L		101	70 - 130
2,6-Dinitrotoluene	1.98	2.02		ug/L		102	70 - 130
2-Methylnaphthalene	1.98	2.05		ug/L		104	70 - 130
4,4'-DDD	1.98	2.08		ug/L		105	70 - 130
4,4'-DDE	1.98	1.97		ug/L		99	70 - 130
4,4'-DDT	1.98	1.93		ug/L		98	70 - 130
Acenaphthene	1.98	2.00		ug/L		101	70 - 130
Acenaphthylene	1.98	1.96		ug/L		99	70 - 130
Acetochlor	1.98	2.57		ug/L		130	70 - 130
Alachlor	1.98	2.14		ug/L		108	70 - 130
alpha-BHC	1.98	2.00		ug/L		101	70 - 130
alpha-Chlordane	1.98	1.90		ug/L		96	70 - 130
Anthracene	1.98	1.97		ug/L		99	70 - 130
Atrazine	1.98	2.35		ug/L		119	70 - 130
Benz(a)anthracene	1.98	2.05		ug/L		104	70 - 130
Benzo[a]pyrene	1.98	2.03		ug/L		102	70 - 130
Benzo[b]fluoranthene	1.98	2.20		ug/L		111	70 - 130
Benzo[g,h,i]perylene	1.98	2.16		ug/L		109	70 - 130
Benzo[k]fluoranthene	1.98	2.12		ug/L		108	70 - 130
beta-BHC	1.98	2.05		ug/L		104	70 - 130
Bis(2-ethylhexyl) phthalate	1.98	2.07		ug/L		105	70 - 130
Bromacil	1.98	2.09		ug/L		106	70 - 130
Butachlor	1.98	2.36		ug/L		119	70 - 130
Butylbenzylphthalate	1.98	2.24		ug/L		113	70 - 130
Chlorobenzilate	1.98	2.40		ug/L		121	70 - 130
Chloroneb	1.98	1.96		ug/L		99	70 - 130
Chlorothalonil (Draconil, Bravo)	1.98	1.87		ug/L		95	70 - 130
Chlorpyrifos	1.98	2.25		ug/L		114	70 - 130
Chrysene	1.98	2.08		ug/L		105	70 - 130
delta-BHC	1.98	1.95		ug/L		99	70 - 130
Di(2-ethylhexyl)adipate	1.98	2.14		ug/L		108	70 - 130
Dibenz(a,h)anthracene	1.98	2.34		ug/L		118	70 - 130
Diclorvos (DDVP)	1.98	2.53		ug/L		128	70 - 130
Dieldrin	1.98	2.00		ug/L		101	70 - 130
Diethylphthalate	1.98	2.12		ug/L		107	70 - 130
Dimethylphthalate	1.98	2.11		ug/L		107	70 - 130
Di-n-butyl phthalate	3.95	4.37		ug/L		111	70 - 130
Di-n-octyl phthalate	1.98	1.92		ug/L		97	70 - 130
Endosulfan I (Alpha)	1.98	2.02		ug/L		102	70 - 130
Endosulfan II (Beta)	1.98	2.05		ug/L		104	70 - 130
Endosulfan sulfate	1.98	2.08		ug/L		105	70 - 130
Endrin	1.98	2.33		ug/L		118	70 - 130
Endrin aldehyde	1.98	1.87		ug/L		94	70 - 130
EPTC	1.98	2.01		ug/L		102	70 - 130
Fluoranthene	1.98	2.14		ug/L		108	70 - 130
Fluorene	1.98	2.10		ug/L		106	70 - 130
gamma-Chlordane	1.98	1.90		ug/L		96	70 - 130
Heptachlor	1.98	2.16		ug/L		109	70 - 130

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QC Sample Results

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

Job ID: 380-58282-1

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

Lab Sample ID: LCS 380-51368/23-A
Matrix: Water
Analysis Batch: 51570

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 51368

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Heptachlor epoxide (isomer B)	1.98	1.99		ug/L		100	70 - 130
Hexachlorobenzene	1.98	1.85		ug/L		94	70 - 130
Hexachlorocyclopentadiene	1.98	1.83		ug/L		93	70 - 130
Indeno[1,2,3-cd]pyrene	1.98	2.36		ug/L		119	70 - 130
Isophorone	1.98	2.16		ug/L		109	70 - 130
Lindane	1.98	2.01		ug/L		102	70 - 130
Malathion	1.98	2.23		ug/L		113	70 - 130
Methoxychlor	1.98	2.14		ug/L		108	70 - 130
Metolachlor	1.98	2.34		ug/L		118	70 - 130
Molinate	1.98	2.23		ug/L		113	70 - 130
Naphthalene	1.98	1.99		ug/L		100	70 - 130
Parathion	1.98	2.38		ug/L		120	70 - 130
Pendimethalin (Penoxaline)	1.98	2.08		ug/L		105	70 - 130
Phenanthrene	1.98	1.98		ug/L		100	70 - 130
Propachlor	1.98	2.27		ug/L		115	70 - 130
Pyrene	1.98	2.14		ug/L		108	70 - 130
Simazine	1.98	2.32		ug/L		117	70 - 130
Terbacil	1.98	2.37		ug/L		120	70 - 130
Terbutylazine	1.98	2.24		ug/L		113	70 - 130
Thiobencarb	1.98	2.43		ug/L		123	70 - 130
trans-Nonachlor	1.98	1.88		ug/L		95	70 - 130
Trifluralin	1.98	1.96		ug/L		99	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Nitro-m-xylene	97		70 - 130
Perylene-d12	92		70 - 130
Triphenylphosphate	97		70 - 130

Lab Sample ID: LCSD 380-51368/24-A
Matrix: Water
Analysis Batch: 51570

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 51368

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1-Methylnaphthalene	1.98	2.01		ug/L		102	70 - 130	0	20
2,4'-DDD	1.98	2.11		ug/L		107	70 - 130	1	20
2,4'-DDE	1.98	2.01		ug/L		102	70 - 130	1	20
2,4'-DDT	1.98	2.07		ug/L		105	70 - 130	1	20
2,4-Dinitrotoluene	1.98	2.01		ug/L		101	70 - 130	0	20
2,6-Dinitrotoluene	1.98	2.03		ug/L		103	70 - 130	1	20
2-Methylnaphthalene	1.98	2.04		ug/L		103	70 - 130	0	20
4,4'-DDD	1.98	2.11		ug/L		107	70 - 130	1	20
4,4'-DDE	1.98	2.01		ug/L		102	70 - 130	2	20
4,4'-DDT	1.98	1.95		ug/L		99	70 - 130	1	20
Acenaphthene	1.98	1.99		ug/L		101	70 - 130	1	20
Acenaphthylene	1.98	1.98		ug/L		100	70 - 130	1	20
Acetochlor	1.98	2.60	*+	ug/L		132	70 - 130	1	20
Alachlor	1.98	2.16		ug/L		109	70 - 130	1	20
alpha-BHC	1.98	2.01		ug/L		102	70 - 130	0	20

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-58282-1

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

Lab Sample ID: LCSD 380-51368/24-A

Matrix: Water

Analysis Batch: 51570

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 51368

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
alpha-Chlordane	1.98	1.90		ug/L		96	70 - 130	0	20	
Anthracene	1.98	1.97		ug/L		100	70 - 130	0	20	
Atrazine	1.98	2.40		ug/L		121	70 - 130	2	20	
Benz(a)anthracene	1.98	2.07		ug/L		105	70 - 130	1	20	
Benzo[a]pyrene	1.98	1.97		ug/L		100	70 - 130	3	20	
Benzo[b]fluoranthene	1.98	2.11		ug/L		107	70 - 130	4	20	
Benzo[g,h,i]perylene	1.98	2.12		ug/L		107	70 - 130	2	20	
Benzo[k]fluoranthene	1.98	2.14		ug/L		109	70 - 130	1	20	
beta-BHC	1.98	2.02		ug/L		102	70 - 130	1	20	
Bis(2-ethylhexyl) phthalate	1.98	2.09		ug/L		106	70 - 130	1	20	
Bromacil	1.98	2.08		ug/L		105	70 - 130	0	20	
Butachlor	1.98	2.40		ug/L		122	70 - 130	2	20	
Butylbenzylphthalate	1.98	2.29		ug/L		116	70 - 130	2	20	
Chlorobenzilate	1.98	2.44		ug/L		124	70 - 130	2	20	
Chloroneb	1.98	1.95		ug/L		99	70 - 130	0	20	
Chlorothalonil (Draconil, Bravo)	1.98	1.90		ug/L		96	70 - 130	2	20	
Chlorpyrifos	1.98	2.26		ug/L		114	70 - 130	1	20	
Chrysene	1.98	2.05		ug/L		104	70 - 130	2	20	
delta-BHC	1.98	1.95		ug/L		99	70 - 130	0	20	
Di(2-ethylhexyl)adipate	1.98	2.23		ug/L		113	70 - 130	4	20	
Dibenz(a,h)anthracene	1.98	2.32		ug/L		118	70 - 130	1	20	
Diclorvos (DDVP)	1.98	2.56		ug/L		130	70 - 130	1	20	
Dieldrin	1.98	2.01		ug/L		102	70 - 130	1	20	
Diethylphthalate	1.98	2.09		ug/L		106	70 - 130	1	20	
Dimethylphthalate	1.98	2.12		ug/L		107	70 - 130	0	20	
Di-n-butyl phthalate	3.95	4.48		ug/L		113	70 - 130	3	20	
Di-n-octyl phthalate	1.98	1.90		ug/L		96	70 - 130	1	20	
Endosulfan I (Alpha)	1.98	1.97		ug/L		100	70 - 130	2	20	
Endosulfan II (Beta)	1.98	2.03		ug/L		102	70 - 130	1	20	
Endosulfan sulfate	1.98	2.06		ug/L		104	70 - 130	1	20	
Endrin	1.98	2.39		ug/L		121	70 - 130	2	20	
Endrin aldehyde	1.98	1.84		ug/L		93	70 - 130	1	20	
EPTC	1.98	2.06		ug/L		104	70 - 130	3	20	
Fluoranthene	1.98	2.16		ug/L		109	70 - 130	1	20	
Fluorene	1.98	2.09		ug/L		106	70 - 130	0	20	
gamma-Chlordane	1.98	1.93		ug/L		98	70 - 130	2	20	
Heptachlor	1.98	2.19		ug/L		111	70 - 130	1	20	
Heptachlor epoxide (isomer B)	1.98	2.00		ug/L		101	70 - 130	1	20	
Hexachlorobenzene	1.98	1.85		ug/L		94	70 - 130	0	20	
Hexachlorocyclopentadiene	1.98	1.82		ug/L		92	70 - 130	1	20	
Indeno[1,2,3-cd]pyrene	1.98	2.35		ug/L		119	70 - 130	1	20	
Isophorone	1.98	2.16		ug/L		109	70 - 130	0	20	
Lindane	1.98	2.06		ug/L		104	70 - 130	2	20	
Malathion	1.98	2.28		ug/L		115	70 - 130	2	20	
Methoxychlor	1.98	2.13		ug/L		108	70 - 130	1	20	
Metolachlor	1.98	2.34		ug/L		118	70 - 130	0	20	
Molinate	1.98	2.23		ug/L		113	70 - 130	0	20	
Naphthalene	1.98	1.99		ug/L		101	70 - 130	0	20	
Parathion	1.98	2.44		ug/L		123	70 - 130	3	20	

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-58282-1

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

Lab Sample ID: LCSD 380-51368/24-A
Matrix: Water
Analysis Batch: 51570

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 51368

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Pendimethalin (Penoxaline)	1.98	2.11		ug/L		107	70 - 130	1	20
Phenanthrene	1.98	1.99		ug/L		101	70 - 130	1	20
Propachlor	1.98	2.27		ug/L		115	70 - 130	0	20
Pyrene	1.98	2.17		ug/L		110	70 - 130	1	20
Simazine	1.98	2.34		ug/L		118	70 - 130	1	20
Terbacil	1.98	2.54		ug/L		129	70 - 130	7	20
Terbutylazine	1.98	2.27		ug/L		115	70 - 130	1	20
Thiobencarb	1.98	2.44		ug/L		123	70 - 130	1	20
trans-Nonachlor	1.98	1.88		ug/L		95	70 - 130	0	20
Trifluralin	1.98	1.96		ug/L		99	70 - 130	0	20

Surrogate	LCSD %Recovery	LCSD Qualifier	LCSD Limits
2-Nitro-m-xylene	98		70 - 130
Perylene-d12	92		70 - 130
Triphenylphosphate	100		70 - 130

Lab Sample ID: MRL 380-51368/22-A
Matrix: Water
Analysis Batch: 51570

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 51368

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
1-Methylnaphthalene	0.0987	0.111		ug/L		113	50 - 150
2,4'-DDD	0.0987	0.116		ug/L		117	50 - 150
2,4'-DDE	0.0987	0.0985	J	ug/L		100	50 - 150
2,4'-DDT	0.0987	0.0931	J	ug/L		94	50 - 150
2,4-Dinitrotoluene	0.0987	0.110		ug/L		111	50 - 150
2,6-Dinitrotoluene	0.0987	0.0868	J	ug/L		88	50 - 150
2-Methylnaphthalene	0.0987	0.107		ug/L		108	50 - 150
4,4'-DDD	0.0987	0.103		ug/L		104	50 - 150
4,4'-DDE	0.0987	0.0882	J	ug/L		89	50 - 150
4,4'-DDT	0.0987	0.121		ug/L		122	50 - 150
Acenaphthene	0.0987	0.0965	J	ug/L		98	50 - 150
Acenaphthylene	0.0987	0.0876	J	ug/L		89	50 - 150
Acetochlor	0.0494	0.0546	J	ug/L		111	50 - 150
Alachlor	0.0494	0.0477	J	ug/L		97	50 - 150
alpha-BHC	0.0987	0.107		ug/L		108	50 - 150
alpha-Chlordane	0.0247	<0.029		ug/L		88	50 - 150
Anthracene	0.0197	0.0196	J	ug/L		99	50 - 150
Atrazine	0.0494	0.0568		ug/L		115	50 - 150
Benz(a)anthracene	0.0494	0.0463	J	ug/L		94	50 - 150
Benzo[a]pyrene	0.0197	0.0168	J	ug/L		85	50 - 150
Benzo[b]fluoranthene	0.0197	0.0189	J	ug/L		96	50 - 150
Benzo[g,h,i]perylene	0.0494	0.0437	J	ug/L		88	50 - 150
Benzo[k]fluoranthene	0.0197	0.0176	J	ug/L		89	50 - 150
beta-BHC	0.0987	0.0934	J	ug/L		95	50 - 150
Bis(2-ethylhexyl) phthalate	0.592	0.792		ug/L		134	50 - 150
Bromacil	0.0987	0.130		ug/L		132	50 - 150
Butachlor	0.0494	0.0556		ug/L		113	50 - 150

QC Sample Results

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

Job ID: 380-58282-1

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

Lab Sample ID: MRL 380-51368/22-A
Matrix: Water
Analysis Batch: 51570

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 51368

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Butylbenzylphthalate	0.148	0.154	J	ug/L		104	50 - 150
Chlorobenzilate	0.0987	0.141		ug/L		142	50 - 150
Chloroneb	0.0987	0.105		ug/L		106	50 - 150
Chlorothalonil (Draconil, Bravo)	0.0987	0.123		ug/L		124	50 - 150
Chlorpyrifos	0.0494	0.0511		ug/L		103	50 - 150
Chrysene	0.0197	0.0186	J	ug/L		94	50 - 150
delta-BHC	0.0987	0.117		ug/L		119	50 - 150
Di(2-ethylhexyl)adipate	0.296	0.343	J	ug/L		116	50 - 150
Dibenz(a,h)anthracene	0.0494	0.0467	J	ug/L		95	50 - 150
Diclorvos (DDVP)	0.0494	0.0942	^3+	ug/L		191	50 - 150
Dieldrin	0.0987	0.0978	J	ug/L		99	50 - 150
Diethylphthalate	0.148	0.178	J	ug/L		120	50 - 150
Dimethylphthalate	0.296	0.303	J	ug/L		102	50 - 150
Di-n-butyl phthalate	0.296	0.389	J	ug/L		131	49 - 243
Di-n-octyl phthalate	0.0987	0.0891	J	ug/L		90	50 - 150
Endosulfan I (Alpha)	0.0987	0.0920	J	ug/L		93	50 - 150
Endosulfan II (Beta)	0.0987	0.0950	J	ug/L		96	50 - 150
Endosulfan sulfate	0.0987	0.0935	J	ug/L		95	50 - 150
Endrin	0.0987	0.134		ug/L		135	50 - 150
Endrin aldehyde	0.0987	<0.083		ug/L		82	50 - 150
EPTC	0.0987	0.0964	J	ug/L		98	50 - 150
Fluoranthene	0.0494	0.0528	J	ug/L		107	50 - 150
Fluorene	0.0494	0.0525		ug/L		106	50 - 150
gamma-Chlordane	0.0247	0.0235	J	ug/L		95	50 - 150
Heptachlor	0.0395	0.0503		ug/L		127	50 - 150
Heptachlor epoxide (isomer B)	0.0494	0.0477	J	ug/L		97	50 - 150
Hexachlorobenzene	0.0494	0.0450	J	ug/L		91	50 - 150
Hexachlorocyclopentadiene	0.0494	<0.038		ug/L		75	50 - 150
Indeno[1,2,3-cd]pyrene	0.0494	0.0477	J	ug/L		97	50 - 150
Isophorone	0.0987	0.110	J	ug/L		111	50 - 150
Lindane	0.0395	0.0450		ug/L		114	50 - 150
Malathion	0.0987	0.127		ug/L		129	50 - 150
Methoxychlor	0.0987	0.116		ug/L		118	50 - 150
Metolachlor	0.0494	0.0543		ug/L		110	50 - 150
Molinate	0.0987	0.107		ug/L		109	50 - 150
Naphthalene	0.0987	0.109	J	ug/L		110	50 - 150
Parathion	0.0987	0.128		ug/L		129	50 - 150
Pendimethalin (Penoxaline)	0.0987	0.121		ug/L		122	50 - 150
Phenanthrene	0.0197	0.0234	J	ug/L		119	50 - 150
Propachlor	0.0494	0.0548		ug/L		111	50 - 150
Pyrene	0.0494	0.0515		ug/L		104	50 - 150
Simazine	0.0494	0.0583		ug/L		118	50 - 150
Terbacil	0.0987	0.125		ug/L		126	50 - 150
Terbutylazine	0.0987	0.105		ug/L		107	50 - 150
Thiobencarb	0.0987	0.118	J	ug/L		119	50 - 150
trans-Nonachlor	0.0247	<0.026		ug/L		84	50 - 150
Trifluralin	0.0987	0.104		ug/L		106	50 - 150

QC Sample Results

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

Job ID: 380-58282-1

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

Lab Sample ID: MRL 380-51368/22-A
Matrix: Water
Analysis Batch: 51570

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 51368

Surrogate	MRL %Recovery	MRL Qualifier	Limits
2-Nitro-m-xylene	99		70 - 130
Perylene-d12	82		70 - 130
Triphenylphosphate	98		70 - 130

Lab Sample ID: 380-58242-O-1-A MS
Matrix: Water
Analysis Batch: 51570

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 51368

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1-Methylnaphthalene	<0.097		1.94	1.98		ug/L		102	70 - 130
2,4'-DDD	<0.097		1.94	2.05		ug/L		105	70 - 130
2,4'-DDE	<0.097		1.94	1.92		ug/L		99	70 - 130
2,4'-DDT	<0.097		1.94	1.98		ug/L		102	70 - 130
2,4-Dinitrotoluene	<0.097		1.94	2.05		ug/L		106	70 - 130
2,6-Dinitrotoluene	<0.097		1.94	2.08		ug/L		107	70 - 130
2-Methylnaphthalene	<0.097		1.94	2.01		ug/L		103	70 - 130
4,4'-DDD	<0.097		1.94	2.04		ug/L		105	70 - 130
4,4'-DDE	<0.097		1.94	1.88		ug/L		97	70 - 130
4,4'-DDT	<0.097		1.94	1.85		ug/L		95	70 - 130
Acenaphthene	<0.097		1.94	1.97		ug/L		101	70 - 130
Acenaphthylene	<0.097		1.94	1.91		ug/L		98	70 - 130
Acetochlor	<0.097	F1 *+	1.94	2.55	F1	ug/L		131	70 - 130
Alachlor	<0.048		1.94	2.16		ug/L		111	70 - 130
alpha-BHC	<0.097		1.94	1.98		ug/L		102	70 - 130
alpha-Chlordane	<0.048		1.94	1.87		ug/L		96	70 - 130
Anthracene	<0.019	F1	1.94	1.16	F1	ug/L		60	70 - 130
Atrazine	<0.048		1.94	2.38		ug/L		122	70 - 130
Benz(a)anthracene	<0.048		1.94	1.86		ug/L		96	70 - 130
Benzo[a]pyrene	<0.019		1.94	1.53		ug/L		79	70 - 130
Benzo[b]fluoranthene	<0.019		1.94	2.03		ug/L		104	70 - 130
Benzo[g,h,i]perylene	<0.048		1.94	2.01		ug/L		104	70 - 130
Benzo[k]fluoranthene	<0.019		1.94	2.11		ug/L		109	70 - 130
beta-BHC	<0.097		1.94	2.03		ug/L		104	70 - 130
Bis(2-ethylhexyl) phthalate	<0.58		1.94	2.04		ug/L		105	70 - 130
Bromacil	<0.097		1.94	2.14		ug/L		110	70 - 130
Butachlor	<0.048		1.94	2.35		ug/L		121	70 - 130
Butylbenzylphthalate	<0.48		1.94	2.25		ug/L		116	70 - 130
Chlorobenzilate	<0.097		1.94	2.38		ug/L		122	70 - 130
Chloroneb	<0.097		1.94	1.89		ug/L		97	70 - 130
Chlorothalonil (Draconil, Bravo)	<0.097		1.94	1.86		ug/L		96	70 - 130
Chlorpyrifos	<0.048		1.94	2.25		ug/L		115	70 - 130
Chrysene	<0.019		1.94	2.04		ug/L		105	70 - 130
delta-BHC	<0.097		1.94	1.94		ug/L		100	70 - 130
Di(2-ethylhexyl)adipate	<0.58		1.94	2.10		ug/L		108	70 - 130
Dibenz(a,h)anthracene	<0.048		1.94	2.14		ug/L		110	70 - 130
Diclorvos (DDVP)	<0.048	^3+	1.94	2.51		ug/L		129	70 - 130
Dieldrin	<0.19		1.94	1.98		ug/L		102	70 - 130
Diethylphthalate	<0.48		1.94	2.08		ug/L		107	70 - 130

QC Sample Results

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

Job ID: 380-58282-1

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

Lab Sample ID: 380-58242-O-2-A DU
Matrix: Water
Analysis Batch: 51570

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 51368

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
2,4'-DDE	<0.097		<0.098		ug/L		NC	20
2,4'-DDT	<0.097		<0.098		ug/L		NC	20
2,4-Dinitrotoluene	<0.097		<0.098		ug/L		NC	20
2,6-Dinitrotoluene	<0.097		<0.098		ug/L		NC	20
2-Methylnaphthalene	<0.097		<0.098		ug/L		NC	20
4,4'-DDD	<0.097		<0.098		ug/L		NC	20
4,4'-DDE	<0.097		<0.098		ug/L		NC	20
4,4'-DDT	<0.097		<0.098		ug/L		NC	20
Acenaphthene	<0.097		<0.098		ug/L		NC	20
Acenaphthylene	<0.097		<0.098		ug/L		NC	20
Acetochlor	<0.097	*+	<0.098	*+	ug/L		NC	20
Alachlor	<0.049		<0.049		ug/L		NC	20
alpha-BHC	<0.097		<0.098		ug/L		NC	20
alpha-Chlordane	<0.049		<0.049		ug/L		NC	20
Anthracene	<0.019		<0.020		ug/L		NC	20
Atrazine	<0.049		<0.049		ug/L		NC	20
Benz(a)anthracene	<0.049		<0.049		ug/L		NC	20
Benzo[a]pyrene	<0.019		<0.020		ug/L		NC	20
Benzo[b]fluoranthene	<0.019		<0.020		ug/L		NC	20
Benzo[g,h,i]perylene	<0.049		<0.049		ug/L		NC	20
Benzo[k]fluoranthene	<0.019		<0.020		ug/L		NC	20
beta-BHC	<0.097		<0.098		ug/L		NC	20
Bis(2-ethylhexyl) phthalate	<0.58		<0.59		ug/L		NC	20
Bromacil	<0.097		<0.098		ug/L		NC	20
Butachlor	<0.049		<0.049		ug/L		NC	20
Butylbenzylphthalate	<0.49		<0.49		ug/L		NC	20
Chlorobenzilate	<0.097		<0.098		ug/L		NC	20
Chloroneb	<0.097		<0.098		ug/L		NC	20
Chlorothalonil (Draconil, Bravo)	<0.097		<0.098		ug/L		NC	20
Chlorpyrifos	<0.049		<0.049		ug/L		NC	20
Chrysene	<0.019		<0.020		ug/L		NC	20
delta-BHC	<0.097		<0.098		ug/L		NC	20
Di(2-ethylhexyl)adipate	<0.58		<0.59		ug/L		NC	20
Dibenz(a,h)anthracene	<0.049		<0.049		ug/L		NC	20
Diclorvos (DDVP)	<0.049	^3+	<0.049		ug/L		NC	20
Dieldrin	<0.19		<0.20		ug/L		NC	20
Diethylphthalate	<0.49		<0.49		ug/L		NC	20
Dimethylphthalate	<0.49		<0.49		ug/L		NC	20
Di-n-butyl phthalate	<0.97		<0.98		ug/L		NC	20
Di-n-octyl phthalate	<0.097		<0.098		ug/L		NC	20
Endosulfan I (Alpha)	<0.097		<0.098		ug/L		NC	20
Endosulfan II (Beta)	<0.097		<0.098		ug/L		NC	20
Endosulfan sulfate	<0.097		<0.098		ug/L		NC	20
Endrin	<0.097		<0.098		ug/L		NC	20
Endrin aldehyde	<0.097		<0.098		ug/L		NC	20
EPTC	<0.097		<0.098		ug/L		NC	20
Fluoranthene	<0.097		<0.098		ug/L		NC	20
Fluorene	<0.049		<0.049		ug/L		NC	20
gamma-Chlordane	<0.049		<0.049		ug/L		NC	20

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-58282-1

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

Lab Sample ID: 380-58242-O-2-A DU
Matrix: Water
Analysis Batch: 51570

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 51368

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier	Result	Qualifier				
Heptachlor	<0.039		<0.039		ug/L		NC	20
Heptachlor epoxide (isomer B)	<0.049		<0.049		ug/L		NC	20
Hexachlorobenzene	<0.049		<0.049		ug/L		NC	20
Hexachlorocyclopentadiene	<0.049		<0.049		ug/L		NC	20
Indeno[1,2,3-cd]pyrene	<0.049		<0.049		ug/L		NC	20
Isophorone	<0.49		<0.49		ug/L		NC	20
Lindane	<0.039		<0.039		ug/L		NC	20
Malathion	<0.097		<0.098		ug/L		NC	20
Methoxychlor	<0.097		<0.098		ug/L		NC	20
Metolachlor	<0.049		<0.049		ug/L		NC	20
Molinate	<0.097		<0.098		ug/L		NC	20
Naphthalene	<0.29		<0.29		ug/L		NC	20
Parathion	<0.097		<0.098		ug/L		NC	20
Pendimethalin (Penoxaline)	<0.097		<0.098		ug/L		NC	20
Phenanthrene	<0.039		<0.039		ug/L		NC	20
Propachlor	<0.049		<0.049		ug/L		NC	20
Pyrene	<0.049		<0.049		ug/L		NC	20
Simazine	<0.049		<0.049		ug/L		NC	20
Terbacil	<0.097		<0.098		ug/L		NC	20
Terbutylazine	<0.097		<0.098		ug/L		NC	20
Thiobencarb	<0.19		<0.20		ug/L		NC	20
Total Permethrin (mixed isomers)	<0.19		<0.20		ug/L		NC	20
trans-Nonachlor	<0.049		<0.049		ug/L		NC	20
Trifluralin	<0.097		<0.098		ug/L		NC	20

Surrogate	DU	DU	Limits
	%Recovery	Qualifier	
2-Nitro-m-xylene	99		70 - 130
Perylene-d12	87		70 - 130
Triphenylphosphate	99		70 - 130

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

Lab Sample ID: MBL 380-53237/21-A
Matrix: Water
Analysis Batch: 53724

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 53237

Analyte	MBL	MBL	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0	ng/L		08/25/23 12:06	08/30/23 08:20	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0	ng/L		08/25/23 12:06	08/30/23 08:20	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		08/25/23 12:06	08/30/23 08:20	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		08/25/23 12:06	08/30/23 08:20	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		08/25/23 12:06	08/30/23 08:20	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		08/25/23 12:06	08/30/23 08:20	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		08/25/23 12:06	08/30/23 08:20	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		08/25/23 12:06	08/30/23 08:20	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		08/25/23 12:06	08/30/23 08:20	1

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QC Sample Results

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

Job ID: 380-58282-1

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

Lab Sample ID: MBL 380-53237/21-A
Matrix: Water
Analysis Batch: 53724

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 53237

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		08/25/23 12:06	08/30/23 08:20	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		08/25/23 12:06	08/30/23 08:20	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		08/25/23 12:06	08/30/23 08:20	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		08/25/23 12:06	08/30/23 08:20	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		08/25/23 12:06	08/30/23 08:20	1
Perfluorobutanoic acid (PFBA)	<0.69		2.0	ng/L		08/25/23 12:06	08/30/23 08:20	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<0.38		2.0	ng/L		08/25/23 12:06	08/30/23 08:20	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<0.37		2.0	ng/L		08/25/23 12:06	08/30/23 08:20	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<0.48		2.0	ng/L		08/25/23 12:06	08/30/23 08:20	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.47		2.0	ng/L		08/25/23 12:06	08/30/23 08:20	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<0.25		2.0	ng/L		08/25/23 12:06	08/30/23 08:20	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.46		2.0	ng/L		08/25/23 12:06	08/30/23 08:20	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.15		2.0	ng/L		08/25/23 12:06	08/30/23 08:20	1
Perfluoropentanoic acid (PFPeA)	<0.38		2.0	ng/L		08/25/23 12:06	08/30/23 08:20	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.36		2.0	ng/L		08/25/23 12:06	08/30/23 08:20	1
Perfluoropentanesulfonic acid (PFPeS)	<0.39		2.0	ng/L		08/25/23 12:06	08/30/23 08:20	1

Isotope Dilution	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	52		50 - 200	08/25/23 12:06	08/30/23 08:20	1
13C6 PFDA	69		50 - 200	08/25/23 12:06	08/30/23 08:20	1
13C5 PFHxA	58		50 - 200	08/25/23 12:06	08/30/23 08:20	1
13C4 PFHpA	55		50 - 200	08/25/23 12:06	08/30/23 08:20	1
13C8 PFOA	59		50 - 200	08/25/23 12:06	08/30/23 08:20	1
13C9 PFNA	61		50 - 200	08/25/23 12:06	08/30/23 08:20	1
13C7 PFUnA	70		50 - 200	08/25/23 12:06	08/30/23 08:20	1
13C2 PFDoA	76		50 - 200	08/25/23 12:06	08/30/23 08:20	1
13C4 PFBA	56		50 - 200	08/25/23 12:06	08/30/23 08:20	1
13C5 PFPeA	56		50 - 200	08/25/23 12:06	08/30/23 08:20	1
13C3 PFBS	91		50 - 200	08/25/23 12:06	08/30/23 08:20	1
13C3 PFHxS	89		50 - 200	08/25/23 12:06	08/30/23 08:20	1
13C8 PFOS	92		50 - 200	08/25/23 12:06	08/30/23 08:20	1
13C2-4:2-FTS	94		50 - 200	08/25/23 12:06	08/30/23 08:20	1
13C2-6:2-FTS	89		50 - 200	08/25/23 12:06	08/30/23 08:20	1
13C2-8:2-FTS	84		50 - 200	08/25/23 12:06	08/30/23 08:20	1

Lab Sample ID: LCS 380-53237/23-A
Matrix: Water
Analysis Batch: 53807

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 53237

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	120	116		ng/L		97	70 - 130

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QC Sample Results

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

Job ID: 380-58282-1

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

Lab Sample ID: LCS 380-53237/23-A
Matrix: Water
Analysis Batch: 53807

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 53237

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid(9Cl-PF3ONS)	120	116		ng/L		96	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	120	117		ng/L		97	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	120	115		ng/L		96	70 - 130
Perfluorobutanesulfonic acid (PFBS)	120	121		ng/L		100	70 - 130
Perfluorodecanoic acid (PFDA)	120	117		ng/L		97	70 - 130
Perfluorododecanoic acid (PFDoA)	120	120		ng/L		99	70 - 130
Perfluoroheptanoic acid (PFHpA)	120	114		ng/L		95	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	120	120		ng/L		99	70 - 130
Perfluorohexanoic acid (PFHxA)	120	115		ng/L		95	70 - 130
Perfluorononanoic acid (PFNA)	120	120		ng/L		99	70 - 130
Perfluorooctanesulfonic acid (PFOS)	120	117		ng/L		97	70 - 130
Perfluorooctanoic acid (PFOA)	120	114		ng/L		95	70 - 130
Perfluoroundecanoic acid (PFUnA)	120	116		ng/L		96	70 - 130
Perfluorobutanoic acid (PFBA)	120	117		ng/L		97	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	120	111		ng/L		92	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	120	114		ng/L		94	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	120	121		ng/L		100	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	120	111		ng/L		92	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	120	113		ng/L		94	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	120	117		ng/L		97	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	120	113		ng/L		94	70 - 130
Perfluoropentanoic acid (PFPeA)	120	117		ng/L		97	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	120	115		ng/L		95	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	120	119		ng/L		99	70 - 130

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C3 HFPO-DA	104		50 - 200
13C6 PFDA	104		50 - 200
13C5 PFHxA	104		50 - 200
13C4 PFHpA	102		50 - 200
13C8 PFOA	105		50 - 200
13C9 PFNA	107		50 - 200
13C7 PFUnA	107		50 - 200
13C2 PFDoA	99		50 - 200
13C4 PFBA	98		50 - 200

QC Sample Results

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

Job ID: 380-58282-1

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

Lab Sample ID: LCS 380-53237/23-A
Matrix: Water
Analysis Batch: 53807

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 53237

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
13C5 PFPeA	102		50 - 200
13C3 PFBS	101		50 - 200
13C3 PFHxS	99		50 - 200
13C8 PFOS	103		50 - 200
13C2-4:2-FTS	109		50 - 200
13C2-6:2-FTS	99		50 - 200
13C2-8:2-FTS	103		50 - 200

Lab Sample ID: LCSD 380-53237/24-A
Matrix: Water
Analysis Batch: 53807

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 53237

<i>Analyte</i>	<i>Spike Added</i>	<i>LCSD Result</i>	<i>LCSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	120	116		ng/L		96	70 - 130	1	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	120	112		ng/L		93	70 - 130	3	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	120	107		ng/L		89	70 - 130	9	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	120	115		ng/L		96	70 - 130	0	30
Perfluorobutanesulfonic acid (PFBS)	120	119		ng/L		99	70 - 130	2	30
Perfluorodecanoic acid (PFDA)	120	117		ng/L		97	70 - 130	0	30
Perfluorododecanoic acid (PFDoA)	120	115		ng/L		95	70 - 130	4	30
Perfluoroheptanoic acid (PFHpA)	120	114		ng/L		94	70 - 130	1	30
Perfluorohexanesulfonic acid (PFHxS)	120	117		ng/L		97	70 - 130	2	30
Perfluorohexanoic acid (PFHxA)	120	116		ng/L		96	70 - 130	1	30
Perfluorononanoic acid (PFNA)	120	121		ng/L		100	70 - 130	1	30
Perfluorooctanesulfonic acid (PFOS)	120	112		ng/L		93	70 - 130	5	30
Perfluorooctanoic acid (PFOA)	120	119		ng/L		99	70 - 130	5	30
Perfluoroundecanoic acid (PFUnA)	120	116		ng/L		96	70 - 130	0	30
Perfluorobutanoic acid (PFBA)	120	113		ng/L		94	70 - 130	3	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	120	110		ng/L		91	70 - 130	1	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	120	112		ng/L		93	70 - 130	1	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	120	113		ng/L		94	70 - 130	6	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	120	118		ng/L		98	70 - 130	6	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	120	110		ng/L		91	70 - 130	3	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	120	113		ng/L		94	70 - 130	3	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	120	111		ng/L		92	70 - 130	2	30

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QC Sample Results

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

Job ID: 380-58282-1

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

Lab Sample ID: LCSD 380-53237/24-A
Matrix: Water
Analysis Batch: 53807

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 53237

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluoropentanoic acid (PFPeA)	120	116		ng/L		96	70 - 130	1	30
Perfluoroheptanesulfonic acid (PFHpS)	120	114		ng/L		95	70 - 130	1	30
Perfluoropentanesulfonic acid (PFPeS)	120	121		ng/L		100	70 - 130	1	30

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	LCSD Limits
13C3 HFPO-DA	106		50 - 200
13C6 PFDA	102		50 - 200
13C5 PFHxA	106		50 - 200
13C4 PFHpA	102		50 - 200
13C8 PFOA	104		50 - 200
13C9 PFNA	105		50 - 200
13C7 PFUnA	107		50 - 200
13C2 PFDoA	104		50 - 200
13C4 PFBA	106		50 - 200
13C5 PFPeA	106		50 - 200
13C3 PFBS	101		50 - 200
13C3 PFHxS	102		50 - 200
13C8 PFOS	104		50 - 200
13C2-4:2-FTS	105		50 - 200
13C2-6:2-FTS	102		50 - 200
13C2-8:2-FTS	97		50 - 200

Lab Sample ID: MRL 380-53237/22-A
Matrix: Water
Analysis Batch: 53724

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 53237

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.00	2.05	J	ng/L		102	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.00	2.14	J	ng/L		107	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	2.17	J	ng/L		108	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	2.17	J	ng/L		108	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.00	2.10	J	ng/L		105	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	2.09	J	ng/L		104	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	1.95	J	ng/L		97	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	2.12	J	ng/L		106	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.00	2.05	J	ng/L		102	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	2.20	J	ng/L		110	50 - 150
Perfluorononanoic acid (PFNA)	2.00	2.25	J	ng/L		112	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.00	1.97	J	ng/L		98	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	2.09	J	ng/L		105	50 - 150

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-58282-1

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

Lab Sample ID: MRL 380-53237/22-A
Matrix: Water
Analysis Batch: 53724

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 53237

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroundecanoic acid (PFUnA)	2.00	2.11	J	ng/L		106	50 - 150
Perfluorobutanoic acid (PFBA)	2.00	2.39	J	ng/L		120	50 - 150
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	2.00	2.05	J	ng/L		102	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	2.00	2.60	J	ng/L		130	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	2.00	2.15	J	ng/L		107	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.00	2.31	J	ng/L		115	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	2.00	1.90	J	ng/L		95	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.00	2.22	J	ng/L		111	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.00	2.12	J	ng/L		106	50 - 150
Perfluoropentanoic acid (PFPeA)	2.00	2.37	J	ng/L		118	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	2.00	2.01	J	ng/L		100	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	2.00	2.11	J	ng/L		105	50 - 150

Isotope Dilution	MRL %Recovery	MRL Qualifier	MRL Limits
13C3 HFPO-DA	95		50 - 200
13C6 PFDA	93		50 - 200
13C5 PFHxA	97		50 - 200
13C4 PFHpA	98		50 - 200
13C8 PFOA	101		50 - 200
13C9 PFNA	93		50 - 200
13C7 PFUnA	94		50 - 200
13C2 PFDoA	93		50 - 200
13C4 PFBA	93		50 - 200
13C5 PFPeA	93		50 - 200
13C3 PFBS	95		50 - 200
13C3 PFHxS	97		50 - 200
13C8 PFOS	97		50 - 200
13C2-4:2-FTS	94		50 - 200
13C2-6:2-FTS	94		50 - 200
13C2-8:2-FTS	89		50 - 200

Lab Sample ID: 380-58618-B-1-A LMS
Matrix: Water
Analysis Batch: 53724

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 53237

Analyte	Sample Result	Sample Qualifier	Spike Added	LMS Result	LMS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.01	2.12		ng/L		105	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<2.0		2.01	2.14		ng/L		106	50 - 150

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QC Sample Results

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

Job ID: 380-58282-1

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

Lab Sample ID: 380-58618-B-1-A LMS
Matrix: Water
Analysis Batch: 53724

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 53237

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
13C8 PFOS	103		50 - 200
13C2-4:2-FTS	114		50 - 200
13C2-6:2-FTS	100		50 - 200
13C2-8:2-FTS	98		50 - 200

Lab Sample ID: 380-58618-C-1-A LMSD
Matrix: Water
Analysis Batch: 53724

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 53237

<i>Analyte</i>	<i>Sample Result</i>	<i>Sample Qualifier</i>	<i>Spike Added</i>	<i>LMSD Result</i>	<i>LMSD Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>	<i>RPD</i>	<i>RPD Limit</i>
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.00	2.10		ng/L		105	50 - 150	1	50
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.00	2.14		ng/L		107	50 - 150	0	50
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.00	2.22		ng/L		111	50 - 150	1	50
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.00	1.88	J	ng/L		94	50 - 150	13	50
Perfluorobutanesulfonic acid (PFBS)	3.4		2.00	5.56		ng/L		108	50 - 150	4	50
Perfluorodecanoic acid (PFDA)	<2.0		2.00	2.00		ng/L		100	50 - 150	10	50
Perfluorododecanoic acid (PFDoA)	<2.0		2.00	2.11		ng/L		105	50 - 150	4	50
Perfluoroheptanoic acid (PFHpA)	<2.0		2.00	2.39		ng/L		99	50 - 150	1	50
Perfluorohexanesulfonic acid (PFHxS)	2.1		2.00	4.40		ng/L		115	50 - 150	2	50
Perfluorohexanoic acid (PFHxA)	<2.0		2.00	2.44		ng/L		122	50 - 150	4	50
Perfluorononanoic acid (PFNA)	<2.0		2.00	2.10		ng/L		105	50 - 150	7	50
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.00	2.46		ng/L		100	50 - 150	2	50
Perfluorooctanoic acid (PFOA)	2.3		2.00	4.35		ng/L		100	50 - 150	1	50
Perfluoroundecanoic acid (PFUnA)	<2.0		2.00	1.91	J	ng/L		95	50 - 150	5	50
Perfluorobutanoic acid (PFBA)	<2.0		2.00	2.94		ng/L		110	50 - 150	9	50
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.00	2.16		ng/L		108	50 - 150	8	50
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.00	2.22		ng/L		111	50 - 150	2	50
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.00	2.39		ng/L		119	50 - 150	7	50
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.00	2.51		ng/L		125	50 - 150	17	50
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.00	1.92	J	ng/L		96	50 - 150	10	50
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.00	2.23		ng/L		111	50 - 150	4	50
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.00	2.13		ng/L		106	50 - 150	3	50
Perfluoropentanoic acid (PFPeA)	<2.0		2.00	2.39		ng/L		119	50 - 150	11	50
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.00	2.17		ng/L		109	50 - 150	3	50

QC Sample Results

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

Job ID: 380-58282-1

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

Lab Sample ID: 380-58618-C-1-A LMSD
Matrix: Water
Analysis Batch: 53724

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 53237

Analyte	Sample Result	Sample Qualifier	Spike Added	LMSD Result	LMSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.00	2.68		ng/L		134	50 - 150	6	50
LMSD LMSD											
Isotope Dilution	%Recovery	Qualifier	Limits								
13C3 HFPO-DA	107		50 - 200								
13C6 PFDA	97		50 - 200								
13C5 PFHxA	98		50 - 200								
13C4 PFHpA	98		50 - 200								
13C8 PFOA	101		50 - 200								
13C9 PFNA	97		50 - 200								
13C7 PFUnA	99		50 - 200								
13C2 PFDoA	96		50 - 200								
13C4 PFBA	102		50 - 200								
13C5 PFPeA	114		50 - 200								
13C3 PFBS	97		50 - 200								
13C3 PFHxS	96		50 - 200								
13C8 PFOS	100		50 - 200								
13C2-4:2-FTS	112		50 - 200								
13C2-6:2-FTS	96		50 - 200								
13C2-8:2-FTS	93		50 - 200								

Lab Sample ID: MBL 380-53790/21-A
Matrix: Water
Analysis Batch: 54066

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 53790

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosfluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0	ng/L		08/30/23 14:25	09/01/23 09:19	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0	ng/L		08/30/23 14:25	09/01/23 09:19	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		08/30/23 14:25	09/01/23 09:19	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		08/30/23 14:25	09/01/23 09:19	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		08/30/23 14:25	09/01/23 09:19	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		08/30/23 14:25	09/01/23 09:19	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		08/30/23 14:25	09/01/23 09:19	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		08/30/23 14:25	09/01/23 09:19	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		08/30/23 14:25	09/01/23 09:19	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		08/30/23 14:25	09/01/23 09:19	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		08/30/23 14:25	09/01/23 09:19	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		08/30/23 14:25	09/01/23 09:19	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		08/30/23 14:25	09/01/23 09:19	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		08/30/23 14:25	09/01/23 09:19	1
Perfluorobutanoic acid (PFBA)	<0.69		2.0	ng/L		08/30/23 14:25	09/01/23 09:19	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<0.38		2.0	ng/L		08/30/23 14:25	09/01/23 09:19	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<0.37		2.0	ng/L		08/30/23 14:25	09/01/23 09:19	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<0.48		2.0	ng/L		08/30/23 14:25	09/01/23 09:19	1

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QC Sample Results

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

Job ID: 380-58282-1

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

Lab Sample ID: MBL 380-53790/21-A
Matrix: Water
Analysis Batch: 54066

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 53790

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.47		2.0	ng/L		08/30/23 14:25	09/01/23 09:19	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.25		2.0	ng/L		08/30/23 14:25	09/01/23 09:19	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.46		2.0	ng/L		08/30/23 14:25	09/01/23 09:19	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.15		2.0	ng/L		08/30/23 14:25	09/01/23 09:19	1
Perfluoropentanoic acid (PFPeA)	<0.38		2.0	ng/L		08/30/23 14:25	09/01/23 09:19	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.36		2.0	ng/L		08/30/23 14:25	09/01/23 09:19	1
Perfluoropentanesulfonic acid (PFPeS)	<0.39		2.0	ng/L		08/30/23 14:25	09/01/23 09:19	1

Isotope Dilution	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	79		50 - 200	08/30/23 14:25	09/01/23 09:19	1
13C6 PFDA	88		50 - 200	08/30/23 14:25	09/01/23 09:19	1
13C5 PFHxA	98		50 - 200	08/30/23 14:25	09/01/23 09:19	1
13C4 PFHpA	90		50 - 200	08/30/23 14:25	09/01/23 09:19	1
13C8 PFOA	92		50 - 200	08/30/23 14:25	09/01/23 09:19	1
13C9 PFNA	88		50 - 200	08/30/23 14:25	09/01/23 09:19	1
13C7 PFUnA	86		50 - 200	08/30/23 14:25	09/01/23 09:19	1
13C2 PFDoA	91		50 - 200	08/30/23 14:25	09/01/23 09:19	1
13C4 PFBA	91		50 - 200	08/30/23 14:25	09/01/23 09:19	1
13C5 PFPeA	89		50 - 200	08/30/23 14:25	09/01/23 09:19	1
13C3 PFBS	94		50 - 200	08/30/23 14:25	09/01/23 09:19	1
13C3 PFHxS	89		50 - 200	08/30/23 14:25	09/01/23 09:19	1
13C8 PFOS	88		50 - 200	08/30/23 14:25	09/01/23 09:19	1
13C2-4:2-FTS	96		50 - 200	08/30/23 14:25	09/01/23 09:19	1
13C2-6:2-FTS	85		50 - 200	08/30/23 14:25	09/01/23 09:19	1
13C2-8:2-FTS	89		50 - 200	08/30/23 14:25	09/01/23 09:19	1

Lab Sample ID: LCS 380-53790/23-A
Matrix: Water
Analysis Batch: 54066

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 53790

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	60.1	59.5		ng/L		99	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	60.1	60.8		ng/L		101	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	60.1	59.7		ng/L		99	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	60.1	60.1		ng/L		100	70 - 130
Perfluorobutanesulfonic acid (PFBS)	60.1	61.5		ng/L		102	70 - 130
Perfluorodecanoic acid (PFDA)	60.1	59.4		ng/L		99	70 - 130
Perfluorododecanoic acid (PFDoA)	60.1	60.9		ng/L		101	70 - 130

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QC Sample Results

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

Job ID: 380-58282-1

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

Lab Sample ID: LCS 380-53790/23-A
Matrix: Water
Analysis Batch: 54066

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 53790

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroheptanoic acid (PFHpA)	60.1	57.7		ng/L		96	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	60.1	59.0		ng/L		98	70 - 130
Perfluorohexanoic acid (PFHxA)	60.1	59.1		ng/L		98	70 - 130
Perfluorononanoic acid (PFNA)	60.1	58.1		ng/L		97	70 - 130
Perfluorooctanesulfonic acid (PFOS)	60.1	57.1		ng/L		95	70 - 130
Perfluorooctanoic acid (PFOA)	60.1	58.3		ng/L		97	70 - 130
Perfluoroundecanoic acid (PFUnA)	60.1	57.2		ng/L		95	70 - 130
Perfluorobutanoic acid (PFBA)	60.1	58.7		ng/L		98	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	60.1	58.2		ng/L		97	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	60.1	59.9		ng/L		100	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	60.1	61.6		ng/L		102	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	60.1	67.5		ng/L		112	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	60.1	62.8		ng/L		104	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	60.1	60.9		ng/L		101	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	60.1	57.3		ng/L		95	70 - 130
Perfluoropentanoic acid (PFPeA)	60.1	59.1		ng/L		98	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	60.1	57.2		ng/L		95	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	60.1	62.4		ng/L		104	70 - 130

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C3 HFPO-DA	88		50 - 200
13C6 PFDA	89		50 - 200
13C5 PFHxA	93		50 - 200
13C4 PFHpA	92		50 - 200
13C8 PFOA	91		50 - 200
13C9 PFNA	92		50 - 200
13C7 PFUnA	89		50 - 200
13C2 PFDoA	92		50 - 200
13C4 PFBA	86		50 - 200
13C5 PFPeA	90		50 - 200
13C3 PFBS	89		50 - 200
13C3 PFHxS	89		50 - 200
13C8 PFOS	91		50 - 200
13C2-4:2-FTS	94		50 - 200
13C2-6:2-FTS	85		50 - 200
13C2-8:2-FTS	89		50 - 200

QC Sample Results

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

Job ID: 380-58282-1

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

Lab Sample ID: LCSD 380-53790/24-A
Matrix: Water
Analysis Batch: 54066

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 53790

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	60.0	57.8		ng/L		96	70 - 130	3	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	60.0	60.3		ng/L		100	70 - 130	1	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	60.0	55.0		ng/L		92	70 - 130	8	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	60.0	56.4		ng/L		94	70 - 130	6	30
Perfluorobutanesulfonic acid (PFBS)	60.0	61.8		ng/L		103	70 - 130	1	30
Perfluorodecanoic acid (PFDA)	60.0	58.6		ng/L		98	70 - 130	1	30
Perfluorododecanoic acid (PFDoA)	60.0	58.9		ng/L		98	70 - 130	3	30
Perfluoroheptanoic acid (PFHpA)	60.0	58.9		ng/L		98	70 - 130	2	30
Perfluorohexanesulfonic acid (PFHxS)	60.0	58.8		ng/L		98	70 - 130	0	30
Perfluorohexanoic acid (PFHxA)	60.0	53.9		ng/L		90	70 - 130	9	30
Perfluorononanoic acid (PFNA)	60.0	59.0		ng/L		98	70 - 130	1	30
Perfluorooctanesulfonic acid (PFOS)	60.0	55.1		ng/L		92	70 - 130	4	30
Perfluorooctanoic acid (PFOA)	60.0	56.4		ng/L		94	70 - 130	3	30
Perfluoroundecanoic acid (PFUnA)	60.0	57.6		ng/L		96	70 - 130	1	30
Perfluorobutanoic acid (PFBA)	60.0	58.2		ng/L		97	70 - 130	1	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	60.0	57.6		ng/L		96	70 - 130	1	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	60.0	61.7		ng/L		103	70 - 130	3	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	60.0	55.4		ng/L		92	70 - 130	11	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	60.0	44.9	*1	ng/L		75	70 - 130	40	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	60.0	61.4		ng/L		102	70 - 130	2	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	60.0	53.5		ng/L		89	70 - 130	13	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	60.0	50.3		ng/L		84	70 - 130	13	30
Perfluoropentanoic acid (PFPeA)	60.0	59.5		ng/L		99	70 - 130	1	30
Perfluoroheptanesulfonic acid (PFHpS)	60.0	55.1		ng/L		92	70 - 130	4	30
Perfluoropentanesulfonic acid (PFPeS)	60.0	61.2		ng/L		102	70 - 130	2	30

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	LCSD Limits
13C3 HFPO-DA	62		50 - 200
13C6 PFDA	85		50 - 200
13C5 PFHxA	75		50 - 200
13C4 PFHpA	71		50 - 200
13C8 PFOA	80		50 - 200
13C9 PFNA	82		50 - 200

QC Sample Results

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

Job ID: 380-58282-1

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

Lab Sample ID: LCSD 380-53790/24-A
Matrix: Water
Analysis Batch: 54066

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 53790

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
13C7 PFUnA	89		50 - 200
13C2 PFDoA	93		50 - 200
13C4 PFBA	60		50 - 200
13C5 PFPeA	66		50 - 200
13C3 PFBS	86		50 - 200
13C3 PFHxS	89		50 - 200
13C8 PFOS	90		50 - 200
13C2-4:2-FTS	91		50 - 200
13C2-6:2-FTS	84		50 - 200
13C2-8:2-FTS	86		50 - 200

Lab Sample ID: MRL 380-53790/22-A
Matrix: Water
Analysis Batch: 54066

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 53790

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec
							Limits
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.00	1.82	J	ng/L		91	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.00	1.99	J	ng/L		99	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	1.85	J	ng/L		92	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	1.84	J	ng/L		92	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.00	1.98	J	ng/L		99	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	1.87	J	ng/L		93	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	1.90	J	ng/L		95	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	1.84	J	ng/L		92	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.00	1.93	J	ng/L		96	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	1.77	J	ng/L		88	50 - 150
Perfluorononanoic acid (PFNA)	2.00	1.92	J	ng/L		96	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.00	1.82	J	ng/L		91	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	1.93	J	ng/L		96	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	1.76	J	ng/L		88	50 - 150
Perfluorobutanoic acid (PFBA)	2.00	2.12	J	ng/L		106	50 - 150
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	2.00	2.00	J	ng/L		100	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	2.00	2.12	J	ng/L		106	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	2.00	2.04	J	ng/L		102	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.00	1.89	J	ng/L		94	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	2.00	1.89	J	ng/L		94	50 - 150

QC Sample Results

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

Job ID: 380-58282-1

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

Lab Sample ID: MRL 380-53790/22-A
Matrix: Water
Analysis Batch: 54066

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 53790

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.00	1.98	J	ng/L		99	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.00	1.84	J	ng/L		92	50 - 150
Perfluoropentanoic acid (PFPeA)	2.00	1.92	J	ng/L		96	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	2.00	1.87	J	ng/L		93	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	2.00	1.99	J	ng/L		99	50 - 150

Isotope Dilution	MRL %Recovery	MRL Qualifier	MRL Limits
13C3 HFPO-DA	86		50 - 200
13C6 PFDA	89		50 - 200
13C5 PFHxA	97		50 - 200
13C4 PFHpA	93		50 - 200
13C8 PFOA	93		50 - 200
13C9 PFNA	89		50 - 200
13C7 PFUnA	87		50 - 200
13C2 PFDoA	89		50 - 200
13C4 PFBA	89		50 - 200
13C5 PFPeA	89		50 - 200
13C3 PFBS	91		50 - 200
13C3 PFHxS	85		50 - 200
13C8 PFOS	92		50 - 200
13C2-4:2-FTS	91		50 - 200
13C2-6:2-FTS	90		50 - 200
13C2-8:2-FTS	87		50 - 200

Lab Sample ID: 380-59148-C-7-A MS
Matrix: Water
Analysis Batch: 54066

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 53790

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		60.4	57.1		ng/L		95	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		60.4	57.3		ng/L		95	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		60.4	60.3		ng/L		100	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		60.4	54.5		ng/L		90	70 - 130
Perfluorobutanesulfonic acid (PFBS)	4.4		60.4	61.0		ng/L		94	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		60.4	59.6		ng/L		99	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		60.4	60.0		ng/L		99	70 - 130
Perfluoroheptanoic acid (PFHpA)	2.4		60.4	61.4		ng/L		98	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	<2.0		60.4	60.2		ng/L		98	70 - 130
Perfluorohexanoic acid (PFHxA)	5.1		60.4	65.1		ng/L		99	70 - 130

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-58282-1

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

Lab Sample ID: 380-59148-C-7-A MS
Matrix: Water
Analysis Batch: 54066

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 53790

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorononanoic acid (PFNA)	<2.0		60.4	58.4		ng/L		95	70 - 130
Perfluorooctanesulfonic acid (PFOS)	12		60.4	67.0		ng/L		90	70 - 130
Perfluorooctanoic acid (PFOA)	9.9		60.4	67.2		ng/L		95	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		60.4	56.5		ng/L		94	70 - 130
Perfluorobutanoic acid (PFBA)	3.8		60.4	67.7		ng/L		106	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		60.4	59.1		ng/L		98	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		60.4	56.1		ng/L		93	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		60.4	53.3		ng/L		88	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0	*1	60.4	53.0		ng/L		88	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		60.4	60.6		ng/L		100	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0	F1	60.4	87.8	F1	ng/L		145	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		60.4	69.5		ng/L		115	70 - 130
Perfluoropentanoic acid (PFPeA)	5.5		60.4	62.0		ng/L		94	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		60.4	55.4		ng/L		92	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	<2.0		60.4	61.3		ng/L		102	70 - 130

Isotope Dilution	MS MS		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	100		50 - 200
13C6 PFDA	88		50 - 200
13C5 PFHxA	87		50 - 200
13C4 PFHpA	85		50 - 200
13C8 PFOA	89		50 - 200
13C9 PFNA	90		50 - 200
13C7 PFUnA	88		50 - 200
13C2 PFDoA	90		50 - 200
13C4 PFBA	87		50 - 200
13C5 PFPeA	160		50 - 200
13C3 PFBS	88		50 - 200
13C3 PFHxS	89		50 - 200
13C8 PFOS	93		50 - 200
13C2-4:2-FTS	127		50 - 200
13C2-6:2-FTS	119		50 - 200
13C2-8:2-FTS	107		50 - 200

QC Sample Results

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

Job ID: 380-58282-1

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

Lab Sample ID: 380-59148-D-7-A MSD

Matrix: Water

Analysis Batch: 54066

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 53790

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		60.2	60.5		ng/L		100	70 - 130	6	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		60.2	62.4		ng/L		104	70 - 130	9	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		60.2	62.4		ng/L		104	70 - 130	3	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		60.2	53.6		ng/L		89	70 - 130	2	30
Perfluorobutanesulfonic acid (PFBS)	4.4		60.2	67.2		ng/L		104	70 - 130	10	30
Perfluorodecanoic acid (PFDA)	<2.0		60.2	62.5		ng/L		104	70 - 130	5	30
Perfluorododecanoic acid (PFDoA)	<2.0		60.2	62.3		ng/L		103	70 - 130	4	30
Perfluoroheptanoic acid (PFHpA)	2.4		60.2	62.1		ng/L		99	70 - 130	1	30
Perfluorohexanesulfonic acid (PFHxS)	<2.0		60.2	60.2		ng/L		98	70 - 130	0	30
Perfluorohexanoic acid (PFHxA)	5.1		60.2	67.0		ng/L		103	70 - 130	3	30
Perfluorononanoic acid (PFNA)	<2.0		60.2	60.3		ng/L		98	70 - 130	3	30
Perfluorooctanesulfonic acid (PFOS)	12		60.2	72.3		ng/L		99	70 - 130	8	30
Perfluorooctanoic acid (PFOA)	9.9		60.2	71.6		ng/L		102	70 - 130	6	30
Perfluoroundecanoic acid (PFUnA)	<2.0		60.2	60.9		ng/L		101	70 - 130	8	30
Perfluorobutanoic acid (PFBA)	3.8		60.2	67.2		ng/L		105	70 - 130	1	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		60.2	58.9		ng/L		98	70 - 130	0	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		60.2	57.1		ng/L		95	70 - 130	2	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		60.2	59.9		ng/L		99	70 - 130	12	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0	*1	60.2	60.2		ng/L		100	70 - 130	13	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		60.2	65.2		ng/L		108	70 - 130	7	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0	F1	60.2	91.5	F1	ng/L		152	70 - 130	4	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		60.2	65.7		ng/L		109	70 - 130	6	30
Perfluoropentanoic acid (PFPeA)	5.5		60.2	64.3		ng/L		98	70 - 130	4	30
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		60.2	60.5		ng/L		100	70 - 130	9	30
Perfluoropentanesulfonic acid (PFPeS)	<2.0		60.2	62.2		ng/L		103	70 - 130	2	30

Isotope Dilution	MSD %Recovery	MSD Qualifier	MSD Limits
13C3 HFPO-DA	95		50 - 200
13C6 PFDA	84		50 - 200
13C5 PFHxA	80		50 - 200
13C4 PFHpA	80		50 - 200
13C8 PFOA	85		50 - 200
13C9 PFNA	88		50 - 200

QC Sample Results

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

Job ID: 380-58282-1

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

Lab Sample ID: 380-59148-D-7-A MSD
Matrix: Water
Analysis Batch: 54066

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 53790

Isotope Dilution	MSD MSD		Limits
	%Recovery	Qualifier	
13C7 PFUnA	84		50 - 200
13C2 PFDoA	88		50 - 200
13C4 PFBA	84		50 - 200
13C5 PFPeA	158		50 - 200
13C3 PFBS	85		50 - 200
13C3 PFHxS	90		50 - 200
13C8 PFOS	90		50 - 200
13C2-4:2-FTS	137		50 - 200
13C2-6:2-FTS	117		50 - 200
13C2-8:2-FTS	118		50 - 200

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

Lab Sample ID: MBL 380-51152/23-A
Matrix: Water
Analysis Batch: 51432

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 51152

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		08/10/23 10:44	08/11/23 23:24	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		08/10/23 10:44	08/11/23 23:24	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		08/10/23 10:44	08/11/23 23:24	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<0.58		2.0	ng/L		08/10/23 10:44	08/11/23 23:24	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<0.42		2.0	ng/L		08/10/23 10:44	08/11/23 23:24	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		08/10/23 10:44	08/11/23 23:24	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		08/10/23 10:44	08/11/23 23:24	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		08/10/23 10:44	08/11/23 23:24	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		08/10/23 10:44	08/11/23 23:24	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		08/10/23 10:44	08/11/23 23:24	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		08/10/23 10:44	08/11/23 23:24	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		08/10/23 10:44	08/11/23 23:24	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		08/10/23 10:44	08/11/23 23:24	1
Perfluorotetradecanoic acid (PFTA)	<0.54		2.0	ng/L		08/10/23 10:44	08/11/23 23:24	1
Perfluorotridecanoic acid (PFTrDA)	<0.36		2.0	ng/L		08/10/23 10:44	08/11/23 23:24	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0	ng/L		08/10/23 10:44	08/11/23 23:24	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0	ng/L		08/10/23 10:44	08/11/23 23:24	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		08/10/23 10:44	08/11/23 23:24	1
Surrogate	MBL MBL		Limits			Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier						
d5-NEtFOSAA	93		70 - 130			08/10/23 10:44	08/11/23 23:24	1
13C2 PFHxA	116		70 - 130			08/10/23 10:44	08/11/23 23:24	1
13C2 PFDA	109		70 - 130			08/10/23 10:44	08/11/23 23:24	1
13C3-GenX	110		70 - 130			08/10/23 10:44	08/11/23 23:24	1

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QC Sample Results

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

Job ID: 380-58282-1

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

Lab Sample ID: LCS 380-51152/25-A
Matrix: Water
Analysis Batch: 51432

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 51152

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	50.1	48.7		ng/L		97	70 - 130
Perfluorooctanesulfonic acid (PFOS)	46.4	44.6		ng/L		96	70 - 130
Perfluoroundecanoic acid (PFUnA)	50.1	46.2		ng/L		92	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	50.1	45.4		ng/L		91	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	50.1	39.4		ng/L		79	70 - 130
Perfluorohexanoic acid (PFHxA)	50.1	51.1		ng/L		102	70 - 130
Perfluorododecanoic acid (PFDoA)	50.1	43.6		ng/L		87	70 - 130
Perfluorooctanoic acid (PFOA)	50.1	49.3		ng/L		98	70 - 130
Perfluorodecanoic acid (PFDA)	50.1	49.0		ng/L		98	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	45.7	41.3		ng/L		90	70 - 130
Perfluorobutanesulfonic acid (PFBS)	44.3	41.5		ng/L		94	70 - 130
Perfluoroheptanoic acid (PFHpA)	50.1	43.3		ng/L		86	70 - 130
Perfluorononanoic acid (PFNA)	50.1	53.5		ng/L		107	70 - 130
Perfluorotetradecanoic acid (PFTA)	50.1	42.3		ng/L		84	70 - 130
Perfluorotridecanoic acid (PFTrDA)	50.1	45.1		ng/L		90	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	46.8	43.6		ng/L		93	70 - 130
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	47.3	40.8		ng/L		86	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	47.3	44.2		ng/L		93	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
d5-NEtFOSAA	89		70 - 130
13C2 PFHxA	115		70 - 130
13C2 PFDA	106		70 - 130
13C3-GenX	113		70 - 130

Lab Sample ID: LCSD 380-51152/26-A
Matrix: Water
Analysis Batch: 51432

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 51152

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	50.1	48.1		ng/L		96	70 - 130	1	30
Perfluorooctanesulfonic acid (PFOS)	46.4	43.5		ng/L		94	70 - 130	2	30
Perfluoroundecanoic acid (PFUnA)	50.1	44.4		ng/L		89	70 - 130	4	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	50.1	43.0		ng/L		86	70 - 130	6	30

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-58282-1

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

Lab Sample ID: LCSD 380-51152/26-A
Matrix: Water
Analysis Batch: 51432

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 51152

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
N-ethylperfluorooctanesulfonamidoacetic acid (NETFOSAA)	50.1	35.7		ng/L		71	70 - 130	10	30
Perfluorohexanoic acid (PFHxA)	50.1	51.1		ng/L		102	70 - 130	0	30
Perfluorododecanoic acid (PFDoA)	50.1	41.7		ng/L		83	70 - 130	5	30
Perfluorooctanoic acid (PFOA)	50.1	48.4		ng/L		97	70 - 130	2	30
Perfluorodecanoic acid (PFDA)	50.1	49.3		ng/L		98	70 - 130	1	30
Perfluorohexanesulfonic acid (PFHxS)	45.7	41.8		ng/L		91	70 - 130	1	30
Perfluorobutanesulfonic acid (PFBS)	44.3	42.7		ng/L		96	70 - 130	3	30
Perfluoroheptanoic acid (PFHpA)	50.1	41.2		ng/L		82	70 - 130	5	30
Perfluorononanoic acid (PFNA)	50.1	55.1		ng/L		110	70 - 130	3	30
Perfluorotetradecanoic acid (PFTA)	50.1	41.7		ng/L		83	70 - 130	1	30
Perfluorotridecanoic acid (PFTTrDA)	50.1	43.1		ng/L		86	70 - 130	5	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	46.8	42.5		ng/L		91	70 - 130	3	30
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	47.3	38.4		ng/L		81	70 - 130	6	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	47.3	42.3		ng/L		89	70 - 130	4	30

Surrogate	LCSD %Recovery	LCSD Qualifier	LCSD Limits
d5-NEtFOSAA	84		70 - 130
13C2 PFHxA	117		70 - 130
13C2 PFDA	111		70 - 130
13C3-GenX	114		70 - 130

Lab Sample ID: MRL 380-51152/24-A
Matrix: Water
Analysis Batch: 51432

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 51152

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.01	2.00	J	ng/L		100	50 - 150
Perfluorooctanesulfonic acid (PFOS)	1.86	1.86	J	ng/L		100	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.01	2.13	J	ng/L		106	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.01	1.86	J	ng/L		93	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NETFOSAA)	2.01	1.91	J	ng/L		95	50 - 150
Perfluorohexanoic acid (PFHxA)	2.01	2.39	J	ng/L		119	50 - 150
Perfluorododecanoic acid (PFDoA)	2.01	2.03	J	ng/L		101	50 - 150
Perfluorooctanoic acid (PFOA)	2.01	2.45	J	ng/L		122	50 - 150
Perfluorodecanoic acid (PFDA)	2.01	2.18	J	ng/L		108	50 - 150

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-58282-1

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

Lab Sample ID: MRL 380-51152/24-A
Matrix: Water
Analysis Batch: 51432

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 51152

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorohexanesulfonic acid (PFHxS)	1.83	1.84	J	ng/L		101	50 - 150
Perfluorobutanesulfonic acid (PFBS)	1.78	1.89	J	ng/L		106	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.01	2.21	J	ng/L		110	50 - 150
Perfluorononanoic acid (PFNA)	2.01	2.68	J	ng/L		134	50 - 150
Perfluorotetradecanoic acid (PFTA)	2.01	2.03	J	ng/L		101	50 - 150
Perfluorotridecanoic acid (PFTTrDA)	2.01	2.09	J	ng/L		104	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	1.88	1.94	J	ng/L		103	50 - 150
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	1.90	1.73	J	ng/L		91	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.90	2.16	J	ng/L		114	50 - 150
Surrogate	%Recovery	MRL	MRL Qualifier	Limits			
d5-NEtFOSAA	102			70 - 130			
13C2 PFHxA	121			70 - 130			
13C2 PFDA	114			70 - 130			
13C3-GenX	105			70 - 130			

Lab Sample ID: 380-58278-E-8-A MS
Matrix: Water
Analysis Batch: 51432

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 51152

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		50.2	46.2	*3	ng/L		92	70 - 130
Perfluorooctanesulfonic acid (PFOS)	2.1		46.5	45.3	*3	ng/L		93	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		50.2	43.3	*3	ng/L		86	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		50.2	42.1		ng/L		84	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		50.2	36.5		ng/L		73	70 - 130
Perfluorohexanoic acid (PFHxA)	<2.0		50.2	50.8	*3	ng/L		98	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		50.2	43.2	*3	ng/L		86	70 - 130
Perfluorooctanoic acid (PFOA)	2.1		50.2	50.4	*3	ng/L		96	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		50.2	49.5	*3	ng/L		99	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	2.2		45.8	44.9	*3	ng/L		93	70 - 130
Perfluorobutanesulfonic acid (PFBS)	<2.0		44.4	42.5	*3	ng/L		92	70 - 130
Perfluoroheptanoic acid (PFHpA)	<2.0		50.2	46.2	*3	ng/L		90	70 - 130
Perfluorononanoic acid (PFNA)	<2.0		50.2	55.0	*3	ng/L		110	70 - 130
Perfluorotetradecanoic acid (PFTA)	<2.0		50.2	42.0	*3	ng/L		84	70 - 130

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-58282-1

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

Lab Sample ID: 380-58278-E-8-A MS
Matrix: Water
Analysis Batch: 51432

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 51152

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorotridecanoic acid (PFTrDA)	<2.0		50.2	43.0	*3	ng/L		86	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		46.9	44.0	*3	ng/L		94	70 - 130
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		47.4	37.8	*3	ng/L		80	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		47.4	44.3	*3	ng/L		93	70 - 130
Surrogate		MS %Recovery	MS Qualifier	Limits					
d5-NEtFOSAA		81		70 - 130					
13C2 PFHxA		106	*3	70 - 130					
13C2 PFDA		106	*3	70 - 130					
13C3-GenX		108	*3	70 - 130					

Lab Sample ID: 380-58278-F-8-A MSD
Matrix: Water
Analysis Batch: 51432

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 51152

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		50.2	48.8		ng/L		97	70 - 130	6	30
Perfluorooctanesulfonic acid (PFOS)	2.1		46.5	44.8		ng/L		92	70 - 130	1	30
Perfluoroundecanoic acid (PFUnA)	<2.0		50.2	44.3		ng/L		88	70 - 130	2	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		50.2	43.1		ng/L		86	70 - 130	2	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		50.2	37.5		ng/L		75	70 - 130	3	30
Perfluorohexanoic acid (PFHxA)	<2.0		50.2	50.9		ng/L		98	70 - 130	0	30
Perfluorododecanoic acid (PFDoA)	<2.0		50.2	45.3		ng/L		90	70 - 130	5	30
Perfluorooctanoic acid (PFOA)	2.1		50.2	51.8		ng/L		99	70 - 130	3	30
Perfluorodecanoic acid (PFDA)	<2.0		50.2	48.3		ng/L		96	70 - 130	3	30
Perfluorohexanesulfonic acid (PFHxS)	2.2		45.8	44.9		ng/L		93	70 - 130	0	30
Perfluorobutanesulfonic acid (PFBS)	<2.0		44.4	44.3		ng/L		96	70 - 130	4	30
Perfluoroheptanoic acid (PFHpA)	<2.0		50.2	45.8		ng/L		89	70 - 130	1	30
Perfluorononanoic acid (PFNA)	<2.0		50.2	55.5		ng/L		111	70 - 130	1	30
Perfluorotetradecanoic acid (PFTA)	<2.0		50.2	43.1		ng/L		86	70 - 130	3	30
Perfluorotridecanoic acid (PFTrDA)	<2.0		50.2	44.6		ng/L		89	70 - 130	4	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		46.9	42.8		ng/L		91	70 - 130	3	30
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		47.4	40.0		ng/L		84	70 - 130	5	30

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-58282-1

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

Lab Sample ID: 380-58278-F-8-A MSD

Matrix: Water

Analysis Batch: 51432

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 51152

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		47.4	43.7		ng/L		92	70 - 130	1	30
Surrogate	%Recovery	MSD Qualifier	MSD Limits								
d5-NEtFOSAA	83		70 - 130								
13C2 PFHxA	112		70 - 130								
13C2 PFDA	110		70 - 130								
13C3-GenX	118		70 - 130								

QC Association Summary

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

Job ID: 380-58282-1

GC/MS Semi VOA

Prep Batch: 51368

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-58282-1	MOANALUA WELLS	Total/NA	Drinking Water	525.2	
MB 380-51368/21-A	Method Blank	Total/NA	Water	525.2	
LCS 380-51368/23-A	Lab Control Sample	Total/NA	Water	525.2	
LCSD 380-51368/24-A	Lab Control Sample Dup	Total/NA	Water	525.2	
MRL 380-51368/22-A	Lab Control Sample	Total/NA	Water	525.2	
380-58242-O-1-A MS	Matrix Spike	Total/NA	Water	525.2	
380-58242-O-2-A DU	Duplicate	Total/NA	Water	525.2	

Analysis Batch: 51570

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-58282-1	MOANALUA WELLS	Total/NA	Drinking Water	525.2	51368
MB 380-51368/21-A	Method Blank	Total/NA	Water	525.2	51368
LCS 380-51368/23-A	Lab Control Sample	Total/NA	Water	525.2	51368
LCSD 380-51368/24-A	Lab Control Sample Dup	Total/NA	Water	525.2	51368
MRL 380-51368/22-A	Lab Control Sample	Total/NA	Water	525.2	51368
380-58242-O-1-A MS	Matrix Spike	Total/NA	Water	525.2	51368
380-58242-O-2-A DU	Duplicate	Total/NA	Water	525.2	51368

LCMS

Prep Batch: 51152

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-58282-1	MOANALUA WELLS	Total/NA	Drinking Water	537.1 DW	
380-58282-2	FB: MOANALUA WELLS	Total/NA	Water	537.1 DW	
MBL 380-51152/23-A	Method Blank	Total/NA	Water	537.1 DW	
LCS 380-51152/25-A	Lab Control Sample	Total/NA	Water	537.1 DW	
LCSD 380-51152/26-A	Lab Control Sample Dup	Total/NA	Water	537.1 DW	
MRL 380-51152/24-A	Lab Control Sample	Total/NA	Water	537.1 DW	
380-58278-E-8-A MS	Matrix Spike	Total/NA	Water	537.1 DW	
380-58278-F-8-A MSD	Matrix Spike Duplicate	Total/NA	Water	537.1 DW	

Analysis Batch: 51432

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-58282-1	MOANALUA WELLS	Total/NA	Drinking Water	537.1	51152
380-58282-2	FB: MOANALUA WELLS	Total/NA	Water	537.1	51152
MBL 380-51152/23-A	Method Blank	Total/NA	Water	537.1	51152
LCS 380-51152/25-A	Lab Control Sample	Total/NA	Water	537.1	51152
LCSD 380-51152/26-A	Lab Control Sample Dup	Total/NA	Water	537.1	51152
MRL 380-51152/24-A	Lab Control Sample	Total/NA	Water	537.1	51152
380-58278-E-8-A MS	Matrix Spike	Total/NA	Water	537.1	51152
380-58278-F-8-A MSD	Matrix Spike Duplicate	Total/NA	Water	537.1	51152

Prep Batch: 53237

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-58282-2	FB: MOANALUA WELLS	Total/NA	Water	533	
MBL 380-53237/21-A	Method Blank	Total/NA	Water	533	
LCS 380-53237/23-A	Lab Control Sample	Total/NA	Water	533	
LCSD 380-53237/24-A	Lab Control Sample Dup	Total/NA	Water	533	
MRL 380-53237/22-A	Lab Control Sample	Total/NA	Water	533	
380-58618-B-1-A LMS	Matrix Spike	Total/NA	Water	533	
380-58618-C-1-A LMSD	Matrix Spike Duplicate	Total/NA	Water	533	

QC Association Summary

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

Job ID: 380-58282-1

LCMS

Analysis Batch: 53724

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-58282-2	FB: MOANALUA WELLS	Total/NA	Water	533	53237
MBL 380-53237/21-A	Method Blank	Total/NA	Water	533	53237
MRL 380-53237/22-A	Lab Control Sample	Total/NA	Water	533	53237
380-58618-B-1-A LMS	Matrix Spike	Total/NA	Water	533	53237
380-58618-C-1-A LMSD	Matrix Spike Duplicate	Total/NA	Water	533	53237

Prep Batch: 53790

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-58282-1	MOANALUA WELLS	Total/NA	Drinking Water	533	
MBL 380-53790/21-A	Method Blank	Total/NA	Water	533	
LCS 380-53790/23-A	Lab Control Sample	Total/NA	Water	533	
LCSD 380-53790/24-A	Lab Control Sample Dup	Total/NA	Water	533	
MRL 380-53790/22-A	Lab Control Sample	Total/NA	Water	533	
380-59148-C-7-A MS	Matrix Spike	Total/NA	Water	533	
380-59148-D-7-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	

Analysis Batch: 53807

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 380-53237/23-A	Lab Control Sample	Total/NA	Water	533	53237
LCSD 380-53237/24-A	Lab Control Sample Dup	Total/NA	Water	533	53237

Analysis Batch: 54066

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-58282-1	MOANALUA WELLS	Total/NA	Drinking Water	533	53790
MBL 380-53790/21-A	Method Blank	Total/NA	Water	533	53790
LCS 380-53790/23-A	Lab Control Sample	Total/NA	Water	533	53790
LCSD 380-53790/24-A	Lab Control Sample Dup	Total/NA	Water	533	53790
MRL 380-53790/22-A	Lab Control Sample	Total/NA	Water	533	53790
380-59148-C-7-A MS	Matrix Spike	Total/NA	Water	533	53790
380-59148-D-7-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	53790

Lab Chronicle

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

Job ID: 380-58282-1

Client Sample ID: MOANALUA WELLS

Lab Sample ID: 380-58282-1

Date Collected: 08/07/23 11:00

Matrix: Drinking Water

Date Received: 08/09/23 10:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	525.2			51368	N8NE	EA POM	08/11/23 16:29
Total/NA	Analysis	525.2		1	51570	Q8LA	EA POM	08/14/23 13:15
Total/NA	Prep	533			53790	EE6W	EA POM	08/30/23 14:25
Total/NA	Analysis	533		1	54066	Y7BM	EA POM	09/01/23 12:20
Total/NA	Prep	537.1 DW			51152	SL5Q	EA POM	08/10/23 10:44
Total/NA	Analysis	537.1		1	51432	UKDT	EA POM	08/12/23 02:45

Client Sample ID: FB: MOANALUA WELLS

Lab Sample ID: 380-58282-2

Date Collected: 08/07/23 11:00

Matrix: Water

Date Received: 08/09/23 10:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			53237	UMV1	EA POM	08/25/23 12:06
Total/NA	Analysis	533		1	53724	UKDT	EA POM	08/30/23 09:08
Total/NA	Prep	537.1 DW			51152	SL5Q	EA POM	08/10/23 10:44
Total/NA	Analysis	537.1		1	51432	UKDT	EA POM	08/12/23 02:55

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: 380-58282-1

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: 380-58282-1

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
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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-Chloroeicosafluoro-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-Chloroeicosafluoro-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: 380-58282-1

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: 380-58282-1

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: 380-58282-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	PWSID Number
380-58282-1	MOANALUA WELLS	Drinking Water	08/07/23 11:00	08/09/23 10:10	HI0000331
380-58282-2	FB: MOANALUA WELLS	Water	08/07/23 11:00	08/09/23 10:10	

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

Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-58282-1

Login Number: 58282
List Number: 1
Creator: Segura, Ryan

List Source: Eurofins Eaton Analytical Pomona

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
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	

