

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

ANALYTICAL REPORT

PREPARED FOR

Attn: Mr. Erwin Kawata
City & County of Honolulu
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JOB DESCRIPTION

RED-HILL
RUSH Weekly Red Hill

JOB NUMBER

380-52637-1

Eurofins Eaton Analytical Pomona

Job Notes

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

Compliance Statement

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

Authorization



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Table of Contents

Cover Page	1
Table of Contents	3
Definitions/Glossary	4
Case Narrative	5
Detection Summary	6
Client Sample Results	7
Action Limit Summary	19
Surrogate Summary	20
Isotope Dilution Summary	22
QC Sample Results	24
QC Association Summary	55
Lab Chronicle	57
Certification Summary	59
Method Summary	62
Sample Summary	63
Chain of Custody	64
Receipt Checklists	66

Definitions/Glossary

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

Job ID: 380-52637-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.
^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
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Case Narrative

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

Job ID: 380-52637-1

Job ID: 380-52637-1

Laboratory: Eurofins Eaton Analytical Pomona

Narrative

Job Narrative 380-52637-1

Comments

No additional comments.

Receipt

The samples were received on 6/28/2023 9:40 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 1.4° C, 1.6° C, 3.1° C and 7.5° C.

Receipt Exceptions

The following samples were received at the laboratory outside the required temperature criteria:

MOANALUA WELLS (380-52637-1), Method 525.2
AIEA GULCH WELLS PUMP 2 (380-52637-2), Method 525.2
HALAWA WELLS UNITS 1 & 2 P1 (380-52637-4), Method 525.2

One out of four coolers arrived out of the required temperature criteria. All of the selected containers associated with this particular cooler is listed above. This does not meet regulatory requirements. The client was contacted regarding this issue and analysis have been cancelled.

GC/MS Semi VOA

Method 525.2: The continuing calibration verification (CCV) associated with batch 380-46023 recovered above the upper control limit for trans-Nonachlor. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: AIEA WELLS PUMPS 1&2 (260) P2 (380-52637-3).

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

LCMS

Method 533: IDA recovery failed for AIEA GULCH WELLS PUMP 2 (380-52637-2), no back up volume available for re-extraction. 533 Data excluded due to this QC failure, 537.1 data was reported as there were no noted QC issues.

Method 533: IDA 13C3 HFPO-DA(45%) failed low. Preparation batch 380-48080 is the second extraction of this sample. IDAs also failed in the initial extraction on 07/16/23. MOANALUA WELLS (380-52637-1). 533 Data excluded due to this QC failure, 537.1 data was reported as there were no noted QC issues.

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

Organic Prep

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

Detection Summary

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

Job ID: 380-52637-1

Client Sample ID: MOANALUA WELLS
PWSID Number: HI0000331

Lab Sample ID: 380-52637-1

No Detections.

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

Lab Sample ID: 380-52637-2

No Detections.

Client Sample ID: AIEA WELLS PUMPS 1&2 (260) P2
PWSID Number: HI0000331

Lab Sample ID: 380-52637-3

No Detections.

Client Sample ID: HALAWA WELLS UNITS 1 & 2 P1
PWSID Number: HI0000331

Lab Sample ID: 380-52637-4

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	2.4		2.0	ng/L	1		533	Total/NA
Perfluorohexanoic acid (PFHxA)	2.3		2.0	ng/L	1		533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.2		2.0	ng/L	1		533	Total/NA
Perfluorooctanoic acid (PFOA)	2.0		2.0	ng/L	1		533	Total/NA
Perfluoropentanoic acid (PFPeA)	2.6		2.0	ng/L	1		533	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.1		2.0	ng/L	1		537.1	Total/NA
Perfluorohexanoic acid (PFHxA)	2.3		2.0	ng/L	1		537.1	Total/NA
Perfluorooctanoic acid (PFOA)	2.1		2.0	ng/L	1		537.1	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	2.5		2.0	ng/L	1		537.1	Total/NA

Client Sample ID: FB MOANALUA WELLS

Lab Sample ID: 380-52637-9

No Detections.

Client Sample ID: FB AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-52637-10

No Detections.

Client Sample ID: FB AIEA WELLS PUMPS 1&2 (260)

Lab Sample ID: 380-52637-11

No Detections.

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

Lab Sample ID: 380-52637-12

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: 380-52637-1

Client Sample ID: MOANALUA WELLS

Lab Sample ID: 380-52637-1

Date Collected: 06/26/23 10:18

Matrix: Drinking Water

Date Received: 06/28/23 09:40

PWSID Number: HI0000331

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		06/30/23 07:18	07/04/23 18:51	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 18:51	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 18:51	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 18:51	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 18:51	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 18:51	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 18:51	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 18:51	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 18:51	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 18:51	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 18:51	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 18:51	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 18:51	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 18:51	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 18:51	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 18:51	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 18:51	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 18:51	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	101		70 - 130			06/30/23 07:18	07/04/23 18:51	1
13C2 PFHxA	115		70 - 130			06/30/23 07:18	07/04/23 18:51	1
13C2 PFDA	108		70 - 130			06/30/23 07:18	07/04/23 18:51	1
13C3-GenX	99		70 - 130			06/30/23 07:18	07/04/23 18:51	1

Client Sample ID: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-52637-2

Date Collected: 06/26/23 11:41

Matrix: Drinking Water

Date Received: 06/28/23 09:40

PWSID Number: HI0000331

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		06/30/23 07:18	07/04/23 19:01	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:01	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:01	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:01	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:01	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:01	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:01	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:01	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:01	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:01	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:01	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:01	1

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Client Sample Results

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

Job ID: 380-52637-1

Client Sample ID: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-52637-2

Date Collected: 06/26/23 11:41

Matrix: Drinking Water

Date Received: 06/28/23 09:40

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:01	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:01	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:01	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:01	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:01	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:01	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	110		70 - 130			06/30/23 07:18	07/04/23 19:01	1
13C2 PFHxA	115		70 - 130			06/30/23 07:18	07/04/23 19:01	1
13C2 PFDA	117		70 - 130			06/30/23 07:18	07/04/23 19:01	1
13C3-GenX	107		70 - 130			06/30/23 07:18	07/04/23 19:01	1

Client Sample ID: AIEA WELLS PUMPS 1&2 (260) P2

Lab Sample ID: 380-52637-3

Date Collected: 06/26/23 11:14

Matrix: Drinking Water

Date Received: 06/28/23 09:40

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	<0.098		0.098	ug/L		06/29/23 13:58	06/30/23 22:08	1
2,4'-DDD	<0.098		0.098	ug/L		06/29/23 13:58	06/30/23 22:08	1
2,4'-DDE	<0.098		0.098	ug/L		06/29/23 13:58	06/30/23 22:08	1
2,4'-DDT	<0.098		0.098	ug/L		06/29/23 13:58	06/30/23 22:08	1
2,4-Dinitrotoluene	<0.098		0.098	ug/L		06/29/23 13:58	06/30/23 22:08	1
2,6-Dinitrotoluene	<0.098		0.098	ug/L		06/29/23 13:58	06/30/23 22:08	1
2-Methylnaphthalene	<0.098		0.098	ug/L		06/29/23 13:58	06/30/23 22:08	1
4,4'-DDD	<0.098		0.098	ug/L		06/29/23 13:58	06/30/23 22:08	1
4,4'-DDE	<0.098		0.098	ug/L		06/29/23 13:58	06/30/23 22:08	1
4,4'-DDT	<0.098		0.098	ug/L		06/29/23 13:58	06/30/23 22:08	1
Acenaphthene	<0.098		0.098	ug/L		06/29/23 13:58	06/30/23 22:08	1
Acenaphthylene	<0.098		0.098	ug/L		06/29/23 13:58	06/30/23 22:08	1
Acetochlor	<0.098		0.098	ug/L		06/29/23 13:58	06/30/23 22:08	1
Alachlor	<0.049		0.049	ug/L		06/29/23 13:58	06/30/23 22:08	1
alpha-BHC	<0.098		0.098	ug/L		06/29/23 13:58	06/30/23 22:08	1
alpha-Chlordane	<0.049		0.049	ug/L		06/29/23 13:58	06/30/23 22:08	1
Anthracene	<0.020		0.020	ug/L		06/29/23 13:58	06/30/23 22:08	1
Atrazine	<0.049		0.049	ug/L		06/29/23 13:58	06/30/23 22:08	1
Benz(a)anthracene	<0.049		0.049	ug/L		06/29/23 13:58	06/30/23 22:08	1
Benzo[a]pyrene	<0.020		0.020	ug/L		06/29/23 13:58	06/30/23 22:08	1
Benzo[b]fluoranthene	<0.020		0.020	ug/L		06/29/23 13:58	06/30/23 22:08	1
Benzo[g,h,i]perylene	<0.049		0.049	ug/L		06/29/23 13:58	06/30/23 22:08	1
Benzo[k]fluoranthene	<0.020		0.020	ug/L		06/29/23 13:58	06/30/23 22:08	1
beta-BHC	<0.098		0.098	ug/L		06/29/23 13:58	06/30/23 22:08	1
Bis(2-ethylhexyl) phthalate	<0.59		0.59	ug/L		06/29/23 13:58	06/30/23 22:08	1
Bromacil	<0.098	*1	0.098	ug/L		06/29/23 13:58	06/30/23 22:08	1
Butachlor	<0.049		0.049	ug/L		06/29/23 13:58	06/30/23 22:08	1
Butylbenzylphthalate	<0.49		0.49	ug/L		06/29/23 13:58	06/30/23 22:08	1
Chlorobenzilate	<0.098		0.098	ug/L		06/29/23 13:58	06/30/23 22:08	1

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Client Sample Results

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

Job ID: 380-52637-1

Client Sample ID: AIEA WELLS PUMPS 1&2 (260) P2

Lab Sample ID: 380-52637-3

Date Collected: 06/26/23 11:14

Matrix: Drinking Water

Date Received: 06/28/23 09:40

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloroneb	<0.098		0.098	ug/L		06/29/23 13:58	06/30/23 22:08	1
Chlorothalonil (Draconil, Bravo)	<0.098		0.098	ug/L		06/29/23 13:58	06/30/23 22:08	1
Chlorpyrifos	<0.049		0.049	ug/L		06/29/23 13:58	06/30/23 22:08	1
Chrysene	<0.020		0.020	ug/L		06/29/23 13:58	06/30/23 22:08	1
delta-BHC	<0.098		0.098	ug/L		06/29/23 13:58	06/30/23 22:08	1
Di(2-ethylhexyl)adipate	<0.59		0.59	ug/L		06/29/23 13:58	06/30/23 22:08	1
Dibenz(a,h)anthracene	<0.049		0.049	ug/L		06/29/23 13:58	06/30/23 22:08	1
Diclorvos (DDVP)	<0.049		0.049	ug/L		06/29/23 13:58	06/30/23 22:08	1
Dieldrin	<0.20		0.20	ug/L		06/29/23 13:58	06/30/23 22:08	1
Diethylphthalate	<0.49		0.49	ug/L		06/29/23 13:58	06/30/23 22:08	1
Dimethylphthalate	<0.49		0.49	ug/L		06/29/23 13:58	06/30/23 22:08	1
Di-n-butyl phthalate	<0.98		0.98	ug/L		06/29/23 13:58	06/30/23 22:08	1
Di-n-octyl phthalate	<0.098		0.098	ug/L		06/29/23 13:58	06/30/23 22:08	1
Endosulfan I (Alpha)	<0.098		0.098	ug/L		06/29/23 13:58	06/30/23 22:08	1
Endosulfan II (Beta)	<0.098		0.098	ug/L		06/29/23 13:58	06/30/23 22:08	1
Endosulfan sulfate	<0.098		0.098	ug/L		06/29/23 13:58	06/30/23 22:08	1
Endrin	<0.098		0.098	ug/L		06/29/23 13:58	06/30/23 22:08	1
Endrin aldehyde	<0.098		0.098	ug/L		06/29/23 13:58	06/30/23 22:08	1
EPTC	<0.098		0.098	ug/L		06/29/23 13:58	06/30/23 22:08	1
Fluoranthene	<0.098		0.098	ug/L		06/29/23 13:58	06/30/23 22:08	1
Fluorene	<0.049		0.049	ug/L		06/29/23 13:58	06/30/23 22:08	1
gamma-Chlordane	<0.049		0.049	ug/L		06/29/23 13:58	06/30/23 22:08	1
Heptachlor	<0.039		0.039	ug/L		06/29/23 13:58	06/30/23 22:08	1
Heptachlor epoxide (isomer B)	<0.049		0.049	ug/L		06/29/23 13:58	06/30/23 22:08	1
Hexachlorobenzene	<0.049		0.049	ug/L		06/29/23 13:58	06/30/23 22:08	1
Hexachlorocyclopentadiene	<0.049		0.049	ug/L		06/29/23 13:58	06/30/23 22:08	1
Indeno[1,2,3-cd]pyrene	<0.049		0.049	ug/L		06/29/23 13:58	06/30/23 22:08	1
Isophorone	<0.49		0.49	ug/L		06/29/23 13:58	06/30/23 22:08	1
Lindane	<0.039		0.039	ug/L		06/29/23 13:58	06/30/23 22:08	1
Malathion	<0.098		0.098	ug/L		06/29/23 13:58	06/30/23 22:08	1
Methoxychlor	<0.098		0.098	ug/L		06/29/23 13:58	06/30/23 22:08	1
Metolachlor	<0.049		0.049	ug/L		06/29/23 13:58	06/30/23 22:08	1
Molinate	<0.098		0.098	ug/L		06/29/23 13:58	06/30/23 22:08	1
Naphthalene	<0.29		0.29	ug/L		06/29/23 13:58	06/30/23 22:08	1
Parathion	<0.098		0.098	ug/L		06/29/23 13:58	06/30/23 22:08	1
Pendimethalin (Penoxaline)	<0.098		0.098	ug/L		06/29/23 13:58	06/30/23 22:08	1
Phenanthrene	<0.039		0.039	ug/L		06/29/23 13:58	06/30/23 22:08	1
Propachlor	<0.049	^3+	0.049	ug/L		06/29/23 13:58	06/30/23 22:08	1
Pyrene	<0.049		0.049	ug/L		06/29/23 13:58	06/30/23 22:08	1
Simazine	<0.049		0.049	ug/L		06/29/23 13:58	06/30/23 22:08	1
Terbacil	<0.098	*1	0.098	ug/L		06/29/23 13:58	06/30/23 22:08	1
Terbutylazine	<0.098		0.098	ug/L		06/29/23 13:58	06/30/23 22:08	1
Thiobencarb	<0.20		0.20	ug/L		06/29/23 13:58	06/30/23 22:08	1
Total Permethrin (mixed isomers)	<0.20		0.20	ug/L		06/29/23 13:58	06/30/23 22:08	1
trans-Nonachlor	<0.049		0.049	ug/L		06/29/23 13:58	06/30/23 22:08	1
Trifluralin	<0.098		0.098	ug/L		06/29/23 13:58	06/30/23 22:08	1

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Tentatively Identified Compound	None		ug/L			N/A	06/29/23 13:58	06/30/23 22:08	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-52637-1

Client Sample ID: AIEA WELLS PUMPS 1&2 (260) P2

Lab Sample ID: 380-52637-3

Date Collected: 06/26/23 11:14

Matrix: Drinking Water

Date Received: 06/28/23 09:40

PWSID Number: HI0000331

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	91		70 - 130	06/29/23 13:58	06/30/23 22:08	1
Perylene-d12	89		70 - 130	06/29/23 13:58	06/30/23 22:08	1
Triphenylphosphate	105		70 - 130	06/29/23 13:58	06/30/23 22:08	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosfluoro-3-oxaundecan	<2.0		2.0	ng/L		07/19/23 21:35	07/31/23 01:31	1
e-1-sulfonic acid (11Cl-PF3OUdS)								
9-Chlorohexadecafluoro-3-oxanonan	<2.0		2.0	ng/L		07/19/23 21:35	07/31/23 01:31	1
e-1-sulfonic acid(9Cl-PF3ONS)								
4,8-Dioxa-3H-perfluorononanoic acid	<2.0		2.0	ng/L		07/19/23 21:35	07/31/23 01:31	1
(ADONA)								
Hexafluoropropylene Oxide Dimer	<2.0		2.0	ng/L		07/19/23 21:35	07/31/23 01:31	1
Acid (HFPO-DA/GenX)								
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		07/19/23 21:35	07/31/23 01:31	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		07/19/23 21:35	07/31/23 01:31	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		07/19/23 21:35	07/31/23 01:31	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		07/19/23 21:35	07/31/23 01:31	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		07/19/23 21:35	07/31/23 01:31	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		07/19/23 21:35	07/31/23 01:31	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		07/19/23 21:35	07/31/23 01:31	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		07/19/23 21:35	07/31/23 01:31	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		07/19/23 21:35	07/31/23 01:31	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		07/19/23 21:35	07/31/23 01:31	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		07/19/23 21:35	07/31/23 01:31	1
1H,1H,2H,2H-Perfluorodecane	<2.0		2.0	ng/L		07/19/23 21:35	07/31/23 01:31	1
sulfonic acid (8:2 FTS)								
1H,1H,2H,2H-Perfluorohexane	<2.0		2.0	ng/L		07/19/23 21:35	07/31/23 01:31	1
sulfonic acid (4:2 FTS)								
1H,1H,2H,2H-Perfluorooctane sulfonic	<2.0		2.0	ng/L		07/19/23 21:35	07/31/23 01:31	1
acid (6:2 FTS)								
Nonafluoro-3,6-dioxaheptanoic acid	<2.0		2.0	ng/L		07/19/23 21:35	07/31/23 01:31	1
(NFDHA)								
Perfluoro (2-ethoxyethane) sulfonic	<2.0		2.0	ng/L		07/19/23 21:35	07/31/23 01:31	1
acid (PFEESA)								
Perfluoro-3-methoxypropanoic acid	<2.0		2.0	ng/L		07/19/23 21:35	07/31/23 01:31	1
(PFMPA)								
Perfluoro-4-methoxybutanoic acid	<2.0		2.0	ng/L		07/19/23 21:35	07/31/23 01:31	1
(PFMBA)								
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		07/19/23 21:35	07/31/23 01:31	1
Perfluoroheptanesulfonic acid	<2.0		2.0	ng/L		07/19/23 21:35	07/31/23 01:31	1
(PFHpS)								
Perfluoropentanesulfonic acid	<2.0		2.0	ng/L		07/19/23 21:35	07/31/23 01:31	1
(PFPeS)								

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	56		50 - 200	07/19/23 21:35	07/31/23 01:31	1
13C6 PFDA	76		50 - 200	07/19/23 21:35	07/31/23 01:31	1
13C5 PFHxA	67		50 - 200	07/19/23 21:35	07/31/23 01:31	1
13C4 PFHpA	71		50 - 200	07/19/23 21:35	07/31/23 01:31	1
13C8 PFOA	75		50 - 200	07/19/23 21:35	07/31/23 01:31	1
13C9 PFNA	79		50 - 200	07/19/23 21:35	07/31/23 01:31	1
13C7 PFUnA	80		50 - 200	07/19/23 21:35	07/31/23 01:31	1
13C2 PFDoA	87		50 - 200	07/19/23 21:35	07/31/23 01:31	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-52637-1

Client Sample ID: AIEA WELLS PUMPS 1&2 (260) P2

Lab Sample ID: 380-52637-3

Date Collected: 06/26/23 11:14

Matrix: Drinking Water

Date Received: 06/28/23 09:40

PWSID Number: HI0000331

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	71		50 - 200	07/19/23 21:35	07/31/23 01:31	1
13C5 PFPeA	66		50 - 200	07/19/23 21:35	07/31/23 01:31	1
13C3 PFBS	96		50 - 200	07/19/23 21:35	07/31/23 01:31	1
13C3 PFHxS	124		50 - 200	07/19/23 21:35	07/31/23 01:31	1
13C8 PFOS	90		50 - 200	07/19/23 21:35	07/31/23 01:31	1
13C2-4:2-FTS	102		50 - 200	07/19/23 21:35	07/31/23 01:31	1
13C2-6:2-FTS	92		50 - 200	07/19/23 21:35	07/31/23 01:31	1
13C2-8:2-FTS	88		50 - 200	07/19/23 21:35	07/31/23 01:31	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		06/30/23 07:18	07/04/23 19:10	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:10	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:10	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:10	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:10	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:10	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:10	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:10	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:10	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:10	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:10	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:10	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:10	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:10	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:10	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:10	1
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:10	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	110		70 - 130	06/30/23 07:18	07/04/23 19:10	1
13C2 PFHxA	114		70 - 130	06/30/23 07:18	07/04/23 19:10	1
13C2 PFDA	114		70 - 130	06/30/23 07:18	07/04/23 19:10	1
13C3-GenX	103		70 - 130	06/30/23 07:18	07/04/23 19:10	1

Client Sample ID: HALAWA WELLS UNITS 1 & 2 P1

Lab Sample ID: 380-52637-4

Date Collected: 06/26/23 10:50

Matrix: Drinking Water

Date Received: 06/28/23 09:40

PWSID Number: HI0000331

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:28	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:28	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-52637-1

Client Sample ID: HALAWA WELLS UNITS 1 & 2 P1

Lab Sample ID: 380-52637-4

Date Collected: 06/26/23 10:50

Matrix: Drinking Water

Date Received: 06/28/23 09:40

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
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:28	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:28	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:28	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:28	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:28	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:28	1
Perfluorohexanesulfonic acid (PFHxS)	2.4		2.0	ng/L		07/16/23 15:45	07/19/23 12:28	1
Perfluorohexanoic acid (PFHxA)	2.3		2.0	ng/L		07/16/23 15:45	07/19/23 12:28	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:28	1
Perfluorooctanesulfonic acid (PFOS)	2.2		2.0	ng/L		07/16/23 15:45	07/19/23 12:28	1
Perfluorooctanoic acid (PFOA)	2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:28	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:28	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:28	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:28	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:28	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:28	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:28	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:28	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:28	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:28	1
Perfluoropentanoic acid (PFPeA)	2.6		2.0	ng/L		07/16/23 15:45	07/19/23 12:28	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:28	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:28	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	58		50 - 200	07/16/23 15:45	07/19/23 12:28	1
13C6 PFDA	68		50 - 200	07/16/23 15:45	07/19/23 12:28	1
13C5 PFHxA	71		50 - 200	07/16/23 15:45	07/19/23 12:28	1
13C4 PFHpA	60		50 - 200	07/16/23 15:45	07/19/23 12:28	1
13C8 PFOA	64		50 - 200	07/16/23 15:45	07/19/23 12:28	1
13C9 PFNA	66		50 - 200	07/16/23 15:45	07/19/23 12:28	1
13C7 PFUnA	72		50 - 200	07/16/23 15:45	07/19/23 12:28	1
13C2 PFDoA	80		50 - 200	07/16/23 15:45	07/19/23 12:28	1
13C4 PFBA	85		50 - 200	07/16/23 15:45	07/19/23 12:28	1
13C5 PFPeA	82		50 - 200	07/16/23 15:45	07/19/23 12:28	1
13C3 PFBS	96		50 - 200	07/16/23 15:45	07/19/23 12:28	1
13C3 PFHxS	95		50 - 200	07/16/23 15:45	07/19/23 12:28	1
13C8 PFOS	103		50 - 200	07/16/23 15:45	07/19/23 12:28	1
13C2-4:2-FTS	123		50 - 200	07/16/23 15:45	07/19/23 12:28	1
13C2-6:2-FTS	116		50 - 200	07/16/23 15:45	07/19/23 12:28	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-52637-1

Client Sample ID: HALAWA WELLS UNITS 1 & 2 P1

Lab Sample ID: 380-52637-4

Date Collected: 06/26/23 10:50

Matrix: Drinking Water

Date Received: 06/28/23 09:40

PWSID Number: HI0000331

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2-8:2-FTS	104		50 - 200	07/16/23 15:45	07/19/23 12:28	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		06/30/23 07:18	07/04/23 19:20	1
Perfluorooctanesulfonic acid (PFOS)	2.1		2.0	ng/L		06/30/23 07:18	07/04/23 19:20	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:20	1
N-methylperfluorooctanesulfonamideacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:20	1
N-ethylperfluorooctanesulfonamideacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:20	1
Perfluorohexanoic acid (PFHxA)	2.3		2.0	ng/L		06/30/23 07:18	07/04/23 19:20	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:20	1
Perfluorooctanoic acid (PFOA)	2.1		2.0	ng/L		06/30/23 07:18	07/04/23 19:20	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:20	1
Perfluorohexanesulfonic acid (PFHxS)	2.5		2.0	ng/L		06/30/23 07:18	07/04/23 19:20	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:20	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:20	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:20	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:20	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:20	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:20	1
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:20	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:20	1
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac		
d5-NEtFOSAA	105		70 - 130	06/30/23 07:18	07/04/23 19:20	1		
13C2 PFHxA	105		70 - 130	06/30/23 07:18	07/04/23 19:20	1		
13C2 PFDA	108		70 - 130	06/30/23 07:18	07/04/23 19:20	1		
13C3-GenX	104		70 - 130	06/30/23 07:18	07/04/23 19:20	1		

Client Sample ID: FB MOANALUA WELLS

Lab Sample ID: 380-52637-9

Date Collected: 06/26/23 10:18

Matrix: Water

Date Received: 06/28/23 09:40

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		06/30/23 07:18	07/04/23 19:29	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:29	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:29	1
N-methylperfluorooctanesulfonamideacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:29	1
N-ethylperfluorooctanesulfonamideacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:29	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:29	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:29	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-52637-1

Client Sample ID: FB MOANALUA WELLS

Lab Sample ID: 380-52637-9

Date Collected: 06/26/23 10:18

Matrix: Water

Date Received: 06/28/23 09:40

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:29	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:29	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:29	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:29	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:29	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:29	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:29	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:29	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:29	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:29	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:29	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	104		70 - 130			06/30/23 07:18	07/04/23 19:29	1
13C2 PFHxA	108		70 - 130			06/30/23 07:18	07/04/23 19:29	1
13C2 PFDA	108		70 - 130			06/30/23 07:18	07/04/23 19:29	1
13C3-GenX	101		70 - 130			06/30/23 07:18	07/04/23 19:29	1

Client Sample ID: FB AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-52637-10

Date Collected: 06/26/23 11:41

Matrix: Water

Date Received: 06/28/23 09:40

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		06/30/23 07:18	07/04/23 19:39	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:39	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:39	1
N-methylperfluorooctanesulfonamidoa cetic acid (NMeFOSAA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:39	1
N-ethylperfluorooctanesulfonamidoac etic acid (NEtFOSAA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:39	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:39	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:39	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:39	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:39	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:39	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:39	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:39	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:39	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:39	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:39	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:39	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:39	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:39	1

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-52637-1

Client Sample ID: FB AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-52637-10

Date Collected: 06/26/23 11:41

Matrix: Water

Date Received: 06/28/23 09:40

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	98		70 - 130	06/30/23 07:18	07/04/23 19:39	1
13C2 PFHxA	106		70 - 130	06/30/23 07:18	07/04/23 19:39	1
13C2 PFDA	107		70 - 130	06/30/23 07:18	07/04/23 19:39	1
13C3-GenX	100		70 - 130	06/30/23 07:18	07/04/23 19:39	1

Client Sample ID: FB AIEA WELLS PUMPS 1&2 (260)

Lab Sample ID: 380-52637-11

Date Collected: 06/26/23 11:14

Matrix: Water

Date Received: 06/28/23 09:40

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		07/16/23 15:45	07/19/23 12:47	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:47	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:47	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:47	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:47	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:47	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:47	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:47	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:47	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:47	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:47	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:47	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:47	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:47	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:47	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:47	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:47	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:47	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:47	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:47	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:47	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:47	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:47	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:47	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:47	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac		
13C3 HFPO-DA	88		50 - 200	07/16/23 15:45	07/19/23 12:47	1		
13C6 PFDA	102		50 - 200	07/16/23 15:45	07/19/23 12:47	1		
13C5 PFHxA	104		50 - 200	07/16/23 15:45	07/19/23 12:47	1		

Eurofins Eaton Analytical Pomona

Client Sample Results

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

Job ID: 380-52637-1

Client Sample ID: FB AIEA WELLS PUMPS 1&2 (260)

Lab Sample ID: 380-52637-11

Date Collected: 06/26/23 11:14

Matrix: Water

Date Received: 06/28/23 09:40

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFHpA	93		50 - 200	07/16/23 15:45	07/19/23 12:47	1
13C8 PFOA	103		50 - 200	07/16/23 15:45	07/19/23 12:47	1
13C9 PFNA	103		50 - 200	07/16/23 15:45	07/19/23 12:47	1
13C7 PFUnA	101		50 - 200	07/16/23 15:45	07/19/23 12:47	1
13C2 PFDoA	104		50 - 200	07/16/23 15:45	07/19/23 12:47	1
13C4 PFBA	104		50 - 200	07/16/23 15:45	07/19/23 12:47	1
13C5 PFPeA	100		50 - 200	07/16/23 15:45	07/19/23 12:47	1
13C3 PFBS	100		50 - 200	07/16/23 15:45	07/19/23 12:47	1
13C3 PFHxS	93		50 - 200	07/16/23 15:45	07/19/23 12:47	1
13C8 PFOS	103		50 - 200	07/16/23 15:45	07/19/23 12:47	1
13C2-4:2-FTS	126		50 - 200	07/16/23 15:45	07/19/23 12:47	1
13C2-6:2-FTS	118		50 - 200	07/16/23 15:45	07/19/23 12:47	1
13C2-8:2-FTS	100		50 - 200	07/16/23 15:45	07/19/23 12:47	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		06/30/23 07:18	07/04/23 19:49	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:49	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:49	1
N-methylperfluorooctanesulfonamideacetic acid (NMeFOSAA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:49	1
N-ethylperfluorooctanesulfonamideacetic acid (NEtFOSAA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:49	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:49	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:49	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:49	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:49	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:49	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:49	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:49	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:49	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:49	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:49	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:49	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:49	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	95		70 - 130	06/30/23 07:18	07/04/23 19:49	1
13C2 PFHxA	121		70 - 130	06/30/23 07:18	07/04/23 19:49	1
13C2 PFDA	109		70 - 130	06/30/23 07:18	07/04/23 19:49	1
13C3-GenX	109		70 - 130	06/30/23 07:18	07/04/23 19:49	1

Client Sample Results

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

Job ID: 380-52637-1

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

Lab Sample ID: 380-52637-12

Date Collected: 06/26/23 10:50

Matrix: Water

Date Received: 06/28/23 09:40

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:56	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:56	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:56	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:56	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:56	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:56	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:56	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:56	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:56	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:56	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:56	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:56	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:56	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:56	1
Perfluorobutanoic acid (PFBA)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:56	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:56	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:56	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:56	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:56	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:56	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:56	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:56	1
Perfluoropentanoic acid (PFPeA)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:56	1
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:56	1
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.0	ng/L		07/16/23 15:45	07/19/23 12:56	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	86		50 - 200	07/16/23 15:45	07/19/23 12:56	1
13C6 PFDA	98		50 - 200	07/16/23 15:45	07/19/23 12:56	1
13C5 PFHxA	99		50 - 200	07/16/23 15:45	07/19/23 12:56	1
13C4 PFHpA	91		50 - 200	07/16/23 15:45	07/19/23 12:56	1
13C8 PFOA	100		50 - 200	07/16/23 15:45	07/19/23 12:56	1
13C9 PFNA	100		50 - 200	07/16/23 15:45	07/19/23 12:56	1
13C7 PFUnA	94		50 - 200	07/16/23 15:45	07/19/23 12:56	1
13C2 PFDoA	96		50 - 200	07/16/23 15:45	07/19/23 12:56	1
13C4 PFBA	103		50 - 200	07/16/23 15:45	07/19/23 12:56	1
13C5 PFPeA	97		50 - 200	07/16/23 15:45	07/19/23 12:56	1
13C3 PFBS	96		50 - 200	07/16/23 15:45	07/19/23 12:56	1
13C3 PFHxS	92		50 - 200	07/16/23 15:45	07/19/23 12:56	1
13C8 PFOS	98		50 - 200	07/16/23 15:45	07/19/23 12:56	1

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Client Sample Results

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

Job ID: 380-52637-1

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

Lab Sample ID: 380-52637-12

Date Collected: 06/26/23 10:50

Matrix: Water

Date Received: 06/28/23 09:40

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2-4:2-FTS	120		50 - 200	07/16/23 15:45	07/19/23 12:56	1
13C2-6:2-FTS	116		50 - 200	07/16/23 15:45	07/19/23 12:56	1
13C2-8:2-FTS	101		50 - 200	07/16/23 15:45	07/19/23 12:56	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		06/30/23 07:18	07/04/23 19:58	1
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:58	1
Perfluoroundecanoic acid (PFUnA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:58	1
N-methylperfluorooctanesulfonamide acetic acid (NMeFOSAA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:58	1
N-ethylperfluorooctanesulfonamide acetic acid (NEtFOSAA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:58	1
Perfluorohexanoic acid (PFHxA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:58	1
Perfluorododecanoic acid (PFDoA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:58	1
Perfluorooctanoic acid (PFOA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:58	1
Perfluorodecanoic acid (PFDA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:58	1
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:58	1
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:58	1
Perfluoroheptanoic acid (PFHpA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:58	1
Perfluorononanoic acid (PFNA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:58	1
Perfluorotetradecanoic acid (PFTA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:58	1
Perfluorotridecanoic acid (PFTrDA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:58	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:58	1
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:58	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		2.0	ng/L		06/30/23 07:18	07/04/23 19:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	101		70 - 130	06/30/23 07:18	07/04/23 19:58	1
13C2 PFHxA	107		70 - 130	06/30/23 07:18	07/04/23 19:58	1
13C2 PFDA	109		70 - 130	06/30/23 07:18	07/04/23 19:58	1
13C3-GenX	103		70 - 130	06/30/23 07:18	07/04/23 19:58	1

Action Limit Summary

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

Job ID: 380-52637-1

Client Sample ID: AIEA WELLS PUMPS 1&2 (260) P2
PWSID Number: HI0000331

Lab Sample ID: 380-52637-3

Compliance Check

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

Analyte	Result	Qualifier	Unit	EPAMCL	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	<0.020		ug/L	0.2	0.020	525.2	Total/NA
Bis(2-ethylhexyl) phthalate	<0.59		ug/L	6	0.59	525.2	Total/NA
Di(2-ethylhexyl)adipate	<0.59		ug/L	400	0.59	525.2	Total/NA
Endrin	<0.098		ug/L	2	0.098	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	<0.098		ug/L	40	0.098	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: 380-52637-1

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)
380-52637-3	AIEA WELLS PUMPS 1&2 (260)	91	89	105

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)
380-52473-AJ-1-A MS	Matrix Spike	94	89	120
380-52480-AK-1-A DU	Duplicate	93	82	120
LCS 380-45783/23-A	Lab Control Sample	96	86	114
LCS 380-45783/24-A	Lab Control Sample Dup	94	81	112
LCS 380-45783/24-A	Lab Control Sample Dup	96	83	120
MB 380-45783/21-A	Method Blank	93	81	104
MRL 380-45783/22-A	Lab Control Sample	95	84	110

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)
380-52637-1	MOANALUA WELLS	101	115	108	99
380-52637-2	AIEA GULCH WELLS PUMP 2	110	115	117	107
380-52637-3	AIEA WELLS PUMPS 1&2 (260) P2	110	114	114	103
380-52637-4	HALAWA WELLS UNITS 1 & 2 P1	105	105	108	104

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)
380-52625-B-1-A MS	Matrix Spike	104	114	112	112
380-52625-C-1-A MSD	Matrix Spike Duplicate	102	118	111	110

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Surrogate Summary

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

Job ID: 380-52637-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		d5NEFOS (70-130)	PFHxA (70-130)	PFDA (70-130)	GenX (70-130)
380-52637-9	FB MOANALUA WELLS	104	108	108	101
380-52637-10	FB AIEA GULCH WELLS PUMP 2	98	106	107	100
380-52637-11	FB AIEA WELLS PUMPS 1&2 (260)	95	121	109	109
380-52637-12	FB HALAWA WELLS UNITS 1 & 2 P1	101	107	109	103
LCS 380-45953/25-A	Lab Control Sample	100	107	105	106
LCSD 380-45953/26-A	Lab Control Sample Dup	100	119	108	110
MBL 380-45953/23-A	Method Blank	100	107	109	96
MRL 380-45953/24-A	Lab Control Sample	103	113	111	107

Surrogate Legend

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



Isotope Dilution Summary

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

Job ID: 380-52637-1

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

Matrix: Drinking Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HFPODA (50-200)	C6PFDA (50-200)	13C5PHA (50-200)	C4PFHA (50-200)	C8PFOA (50-200)	C9PFNA (50-200)	13C7PUA (50-200)	PFDoA (50-200)
380-52637-3	AIEA WELLS PUMPS 1&2 (260)	56	76	67	71	75	79	80	87
380-52637-4	HALAWA WELLS UNITS 1 & 2 P1	58	68	71	60	64	66	72	80

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)
380-52637-3	AIEA WELLS PUMPS 1&2 (260)	71	66	96	124	90	102	92	88
380-52637-4	HALAWA WELLS UNITS 1 & 2 P1	85	82	96	95	103	123	116	104

Surrogate Legend

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

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

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HFPODA (50-200)	C6PFDA (50-200)	13C5PHA (50-200)	C4PFHA (50-200)	C8PFOA (50-200)	C9PFNA (50-200)	13C7PUA (50-200)	PFDoA (50-200)
380-52637-11	FB AIEA WELLS PUMPS 1&2 (260)	88	102	104	93	103	103	101	104
380-52637-12	FB HALAWA WELLS UNITS 1 & 2 P1	86	98	99	91	100	100	94	96
380-52749-E-1-A LMS	Matrix Spike	52	89	69	69	78	84	90	96
380-52749-F-1-A LMSD	Matrix Spike Duplicate	78	97	92	87	95	95	97	100
380-53105-B-1-A MS	Matrix Spike	56	70	61	64	68	71	75	78
380-53105-C-1-A MSD	Matrix Spike Duplicate	47 *5-	61	57	54	56	61	66	73
LCS 380-47534/21-A	Lab Control Sample	80	92	92	89	96	93	95	97
LCS 380-48080/23-A	Lab Control Sample	87	89	89	92	91	91	88	89
LCS 380-48080/24-A	Lab Control Sample Dup	96	87	95	97	91	93	85	86
MBL 380-47534/19-A	Method Blank	84	96	96	89	96	97	96	101
MBL 380-48080/21-A	Method Blank	78	85	88	88	91	93	83	89
MRL 380-47534/20-A	Lab Control Sample	75	93	89	81	89	92	91	96
MRL 380-48080/22-A	Lab Control Sample	77	84	85	88	92	91	83	88

Isotope Dilution Summary

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

Job ID: 380-52637-1

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)
380-52637-11	FB AIEA WELLS PUMPS 1&2 (2	104	100	100	93	103	126	118	100
380-52637-12	FB HALAWA WELLS UNITS 1 & 2 P1	103	97	96	92	98	120	116	101
380-52749-E-1-A LMS	Matrix Spike	74	68	97	96	101	126	114	100
380-52749-F-1-A LMSD	Matrix Spike Duplicate	97	100	99	96	101	123	118	99
380-53105-B-1-A MS	Matrix Spike	71	67	93	122	91	97	98	86
380-53105-C-1-A MSD	Matrix Spike Duplicate	62	58	90	119	90	93	94	86
LCS 380-47534/21-A	Lab Control Sample	94	90	95	94	99	115	113	94
LCS 380-48080/23-A	Lab Control Sample	91	88	89	118	88	85	93	89
LCSD 380-48080/24-A	Lab Control Sample Dup	91	91	92	123	88	100	94	89
MBL 380-47534/19-A	Method Blank	102	99	96	95	102	123	114	124
MBL 380-48080/21-A	Method Blank	93	89	95	123	91	107	96	90
MRL 380-47534/20-A	Lab Control Sample	95	91	95	89	98	126	113	94
MRL 380-48080/22-A	Lab Control Sample	97	94	96	120	92	101	95	90

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: 380-52637-1

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

Lab Sample ID: MB 380-45783/21-A
Matrix: Water
Analysis Batch: 46023

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 45783

Analyte	MB	MB	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
1-Methylnaphthalene	<0.099		0.099	ug/L		06/29/23 12:20	06/30/23 17:27	1
2,4'-DDD	<0.099		0.099	ug/L		06/29/23 12:20	06/30/23 17:27	1
2,4'-DDE	<0.099		0.099	ug/L		06/29/23 12:20	06/30/23 17:27	1
2,4'-DDT	<0.099		0.099	ug/L		06/29/23 12:20	06/30/23 17:27	1
2,4-Dinitrotoluene	<0.099		0.099	ug/L		06/29/23 12:20	06/30/23 17:27	1
2,6-Dinitrotoluene	<0.099		0.099	ug/L		06/29/23 12:20	06/30/23 17:27	1
2-Methylnaphthalene	<0.099		0.099	ug/L		06/29/23 12:20	06/30/23 17:27	1
4,4'-DDD	<0.099		0.099	ug/L		06/29/23 12:20	06/30/23 17:27	1
4,4'-DDE	<0.099		0.099	ug/L		06/29/23 12:20	06/30/23 17:27	1
4,4'-DDT	<0.099		0.099	ug/L		06/29/23 12:20	06/30/23 17:27	1
Acenaphthene	<0.099		0.099	ug/L		06/29/23 12:20	06/30/23 17:27	1
Acenaphthylene	<0.099		0.099	ug/L		06/29/23 12:20	06/30/23 17:27	1
Acetochlor	<0.099		0.099	ug/L		06/29/23 12:20	06/30/23 17:27	1
Alachlor	<0.050		0.050	ug/L		06/29/23 12:20	06/30/23 17:27	1
alpha-BHC	<0.099		0.099	ug/L		06/29/23 12:20	06/30/23 17:27	1
alpha-Chlordane	<0.050		0.050	ug/L		06/29/23 12:20	06/30/23 17:27	1
Anthracene	<0.020		0.020	ug/L		06/29/23 12:20	06/30/23 17:27	1
Atrazine	<0.050		0.050	ug/L		06/29/23 12:20	06/30/23 17:27	1
Benz(a)anthracene	<0.050		0.050	ug/L		06/29/23 12:20	06/30/23 17:27	1
Benzo[a]pyrene	<0.020		0.020	ug/L		06/29/23 12:20	06/30/23 17:27	1
Benzo[b]fluoranthene	<0.020		0.020	ug/L		06/29/23 12:20	06/30/23 17:27	1
Benzo[g,h,i]perylene	<0.050		0.050	ug/L		06/29/23 12:20	06/30/23 17:27	1
Benzo[k]fluoranthene	<0.020		0.020	ug/L		06/29/23 12:20	06/30/23 17:27	1
beta-BHC	<0.099		0.099	ug/L		06/29/23 12:20	06/30/23 17:27	1
Bis(2-ethylhexyl) phthalate	<0.60		0.60	ug/L		06/29/23 12:20	06/30/23 17:27	1
Bromacil	<0.099		0.099	ug/L		06/29/23 12:20	06/30/23 17:27	1
Butachlor	<0.050		0.050	ug/L		06/29/23 12:20	06/30/23 17:27	1
Butylbenzylphthalate	<0.50		0.50	ug/L		06/29/23 12:20	06/30/23 17:27	1
Chlorobenzilate	<0.099		0.099	ug/L		06/29/23 12:20	06/30/23 17:27	1
Chloroneb	<0.099		0.099	ug/L		06/29/23 12:20	06/30/23 17:27	1
Chlorothalonil (Draconil, Bravo)	<0.099		0.099	ug/L		06/29/23 12:20	06/30/23 17:27	1
Chlorpyrifos	<0.050		0.050	ug/L		06/29/23 12:20	06/30/23 17:27	1
Chrysene	<0.020		0.020	ug/L		06/29/23 12:20	06/30/23 17:27	1
delta-BHC	<0.099		0.099	ug/L		06/29/23 12:20	06/30/23 17:27	1
Di(2-ethylhexyl)adipate	<0.60		0.60	ug/L		06/29/23 12:20	06/30/23 17:27	1
Dibenz(a,h)anthracene	<0.050		0.050	ug/L		06/29/23 12:20	06/30/23 17:27	1
Diclorvos (DDVP)	<0.050		0.050	ug/L		06/29/23 12:20	06/30/23 17:27	1
Dieldrin	<0.20		0.20	ug/L		06/29/23 12:20	06/30/23 17:27	1
Diethylphthalate	<0.50		0.50	ug/L		06/29/23 12:20	06/30/23 17:27	1
Dimethylphthalate	<0.50		0.50	ug/L		06/29/23 12:20	06/30/23 17:27	1
Di-n-butyl phthalate	<0.99		0.99	ug/L		06/29/23 12:20	06/30/23 17:27	1
Di-n-octyl phthalate	<0.099		0.099	ug/L		06/29/23 12:20	06/30/23 17:27	1
Endosulfan I (Alpha)	<0.099		0.099	ug/L		06/29/23 12:20	06/30/23 17:27	1
Endosulfan II (Beta)	<0.099		0.099	ug/L		06/29/23 12:20	06/30/23 17:27	1
Endosulfan sulfate	<0.099		0.099	ug/L		06/29/23 12:20	06/30/23 17:27	1
Endrin	<0.099		0.099	ug/L		06/29/23 12:20	06/30/23 17:27	1
Endrin aldehyde	<0.099		0.099	ug/L		06/29/23 12:20	06/30/23 17:27	1
EPTC	<0.099		0.099	ug/L		06/29/23 12:20	06/30/23 17:27	1

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-52637-1

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

Lab Sample ID: MB 380-45783/21-A
Matrix: Water
Analysis Batch: 46023

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 45783

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoranthene	<0.099		0.099	ug/L		06/29/23 12:20	06/30/23 17:27	1
Fluorene	<0.050		0.050	ug/L		06/29/23 12:20	06/30/23 17:27	1
gamma-Chlordane	<0.050		0.050	ug/L		06/29/23 12:20	06/30/23 17:27	1
Heptachlor	<0.040		0.040	ug/L		06/29/23 12:20	06/30/23 17:27	1
Heptachlor epoxide (isomer B)	<0.050		0.050	ug/L		06/29/23 12:20	06/30/23 17:27	1
Hexachlorobenzene	<0.050		0.050	ug/L		06/29/23 12:20	06/30/23 17:27	1
Hexachlorocyclopentadiene	<0.050		0.050	ug/L		06/29/23 12:20	06/30/23 17:27	1
Indeno[1,2,3-cd]pyrene	<0.050		0.050	ug/L		06/29/23 12:20	06/30/23 17:27	1
Isophorone	<0.50		0.50	ug/L		06/29/23 12:20	06/30/23 17:27	1
Lindane	<0.040		0.040	ug/L		06/29/23 12:20	06/30/23 17:27	1
Malathion	<0.099		0.099	ug/L		06/29/23 12:20	06/30/23 17:27	1
Methoxychlor	<0.099		0.099	ug/L		06/29/23 12:20	06/30/23 17:27	1
Metolachlor	<0.050		0.050	ug/L		06/29/23 12:20	06/30/23 17:27	1
Molinate	<0.099		0.099	ug/L		06/29/23 12:20	06/30/23 17:27	1
Naphthalene	<0.30		0.30	ug/L		06/29/23 12:20	06/30/23 17:27	1
Parathion	<0.099		0.099	ug/L		06/29/23 12:20	06/30/23 17:27	1
Pendimethalin (Penoxaline)	<0.099		0.099	ug/L		06/29/23 12:20	06/30/23 17:27	1
Phenanthrene	<0.040		0.040	ug/L		06/29/23 12:20	06/30/23 17:27	1
Propachlor	<0.050		0.050	ug/L		06/29/23 12:20	06/30/23 17:27	1
Pyrene	<0.050		0.050	ug/L		06/29/23 12:20	06/30/23 17:27	1
Simazine	<0.050		0.050	ug/L		06/29/23 12:20	06/30/23 17:27	1
Terbacil	<0.099		0.099	ug/L		06/29/23 12:20	06/30/23 17:27	1
Terbutylazine	<0.099		0.099	ug/L		06/29/23 12:20	06/30/23 17:27	1
Thiobencarb	<0.20		0.20	ug/L		06/29/23 12:20	06/30/23 17:27	1
Total Permethrin (mixed isomers)	<0.20		0.20	ug/L		06/29/23 12:20	06/30/23 17:27	1
trans-Nonachlor	<0.050		0.050	ug/L		06/29/23 12:20	06/30/23 17:27	1
Trifluralin	<0.099		0.099	ug/L		06/29/23 12:20	06/30/23 17:27	1

Tentatively Identified Compound	MB Est. Result	MB Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Decane	1.96	T J N	ug/L		2.33	124-18-5	06/29/23 12:20	06/30/23 17:27	1
Decane, 2-methyl-	0.778	T J N	ug/L		2.51	6975-98-0	06/29/23 12:20	06/30/23 17:27	1
2,4,7,9-Tetramethyl-5-decyn-4,7-diol	0.536	T J N	ug/L		3.76	126-86-3	06/29/23 12:20	06/30/23 17:27	1
Tetradecanoic acid	0.590	T J N	ug/L		5.71	544-63-8	06/29/23 12:20	06/30/23 17:27	1
Oleic Acid	0.748	T J N	ug/L		6.32	112-80-1	06/29/23 12:20	06/30/23 17:27	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene	93		70 - 130	06/29/23 12:20	06/30/23 17:27	1
Perylene-d12	81		70 - 130	06/29/23 12:20	06/30/23 17:27	1
Triphenylphosphate	104		70 - 130	06/29/23 12:20	06/30/23 17:27	1

Lab Sample ID: LCS 380-45783/23-A
Matrix: Water
Analysis Batch: 46023

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 45783

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1-Methylnaphthalene	1.98	2.09		ug/L		105	70 - 130
2,4'-DDD	1.98	2.09		ug/L		105	70 - 130
2,4'-DDE	1.98	2.03		ug/L		102	70 - 130

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-52637-1

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

Lab Sample ID: LCS 380-45783/23-A
Matrix: Water
Analysis Batch: 46023

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 45783

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4'-DDT	1.98	2.24		ug/L		113	70 - 130
2,4-Dinitrotoluene	1.98	2.20		ug/L		111	70 - 130
2,6-Dinitrotoluene	1.98	2.20		ug/L		111	70 - 130
2-Methylnaphthalene	1.98	2.12		ug/L		107	70 - 130
4,4'-DDD	1.98	2.27		ug/L		115	70 - 130
4,4'-DDE	1.98	2.22		ug/L		112	70 - 130
4,4'-DDT	1.98	2.17		ug/L		109	70 - 130
Acenaphthene	1.98	2.01		ug/L		102	70 - 130
Acenaphthylene	1.98	2.03		ug/L		102	70 - 130
Acetochlor	1.98	1.86		ug/L		94	70 - 130
Alachlor	1.98	2.04		ug/L		103	70 - 130
alpha-BHC	1.98	2.11		ug/L		106	70 - 130
alpha-Chlordane	1.98	2.28		ug/L		115	70 - 130
Anthracene	1.98	2.02		ug/L		102	70 - 130
Atrazine	1.98	2.44		ug/L		123	70 - 130
Benz(a)anthracene	1.98	2.30		ug/L		116	70 - 130
Benzo[a]pyrene	1.98	2.10		ug/L		106	70 - 130
Benzo[b]fluoranthene	1.98	2.24		ug/L		113	70 - 130
Benzo[g,h,i]perylene	1.98	1.61		ug/L		81	70 - 130
Benzo[k]fluoranthene	1.98	2.31		ug/L		116	70 - 130
beta-BHC	1.98	2.15		ug/L		108	70 - 130
Bis(2-ethylhexyl) phthalate	1.98	1.85		ug/L		93	70 - 130
Bromacil	1.98	2.14		ug/L		108	70 - 130
Butachlor	1.98	2.27		ug/L		114	70 - 130
Butylbenzylphthalate	1.98	2.32		ug/L		117	70 - 130
Chlorobenzilate	1.98	1.93		ug/L		98	70 - 130
Chloroneb	1.98	2.18		ug/L		110	70 - 130
Chlorothalonil (Draconil, Bravo)	1.98	1.98		ug/L		100	70 - 130
Chlorpyrifos	1.98	2.23		ug/L		113	70 - 130
Chrysene	1.98	2.16		ug/L		109	70 - 130
delta-BHC	1.98	1.88		ug/L		95	70 - 130
Di(2-ethylhexyl)adipate	1.98	2.08		ug/L		105	70 - 130
Dibenz(a,h)anthracene	1.98	1.85		ug/L		93	70 - 130
Diclorvos (DDVP)	1.98	1.76		ug/L		89	70 - 130
Dieldrin	1.98	2.06		ug/L		104	70 - 130
Diethylphthalate	1.98	2.16		ug/L		109	70 - 130
Dimethylphthalate	1.98	2.20		ug/L		111	70 - 130
Di-n-butyl phthalate	3.97	4.27		ug/L		108	70 - 130
Di-n-octyl phthalate	1.98	1.69		ug/L		85	70 - 130
Endosulfan I (Alpha)	1.98	1.89		ug/L		95	70 - 130
Endosulfan II (Beta)	1.98	2.09		ug/L		106	70 - 130
Endosulfan sulfate	1.98	2.20		ug/L		111	70 - 130
Endrin	1.98	2.18		ug/L		110	70 - 130
Endrin aldehyde	1.98	2.00		ug/L		101	70 - 130
EPTC	1.98	2.21		ug/L		111	70 - 130
Fluoranthene	1.98	2.26		ug/L		114	70 - 130
Fluorene	1.98	2.15		ug/L		109	70 - 130
gamma-Chlordane	1.98	2.26		ug/L		114	70 - 130
Heptachlor	1.98	2.11		ug/L		106	70 - 130

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QC Sample Results

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

Job ID: 380-52637-1

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

Lab Sample ID: LCS 380-45783/23-A
Matrix: Water
Analysis Batch: 46023

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 45783

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Heptachlor epoxide (isomer B)	1.98	2.31		ug/L		116	70 - 130
Hexachlorobenzene	1.98	2.25		ug/L		113	70 - 130
Hexachlorocyclopentadiene	1.98	2.20		ug/L		111	70 - 130
Indeno[1,2,3-cd]pyrene	1.98	1.82		ug/L		92	70 - 130
Isophorone	1.98	1.90		ug/L		96	70 - 130
Lindane	1.98	2.13		ug/L		108	70 - 130
Malathion	1.98	2.01		ug/L		101	70 - 130
Methoxychlor	1.98	2.27		ug/L		115	70 - 130
Metolachlor	1.98	2.15		ug/L		109	70 - 130
Molinate	1.98	2.20		ug/L		111	70 - 130
Naphthalene	1.98	2.07		ug/L		105	70 - 130
Parathion	1.98	2.26		ug/L		114	70 - 130
Pendimethalin (Penoxaline)	1.98	2.12		ug/L		107	70 - 130
Phenanthrene	1.98	2.02		ug/L		102	70 - 130
Propachlor	1.98	2.08		ug/L		105	70 - 130
Pyrene	1.98	2.29		ug/L		115	70 - 130
Simazine	1.98	2.49		ug/L		125	70 - 130
Terbacil	1.98	2.40		ug/L		121	70 - 130
Terbutylazine	1.98	2.55		ug/L		128	70 - 130
Thiobencarb	1.98	2.10		ug/L		106	70 - 130
trans-Nonachlor	1.98	2.44		ug/L		123	70 - 130
Trifluralin	1.98	2.03		ug/L		102	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Nitro-m-xylene	96		70 - 130
Perylene-d12	86		70 - 130
Triphenylphosphate	114		70 - 130

Lab Sample ID: LCSD 380-45783/24-A
Matrix: Water
Analysis Batch: 46023

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 45783

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1-Methylnaphthalene	1.99	2.06		ug/L		103	70 - 130	2	20
2,4'-DDD	1.99	2.09		ug/L		105	70 - 130	0	20
2,4'-DDE	1.99	2.05		ug/L		103	70 - 130	1	20
2,4'-DDT	1.99	2.27		ug/L		114	70 - 130	1	20
2,4-Dinitrotoluene	1.99	2.29		ug/L		115	70 - 130	4	20
2,6-Dinitrotoluene	1.99	2.21		ug/L		111	70 - 130	1	20
2-Methylnaphthalene	1.99	2.08		ug/L		105	70 - 130	2	20
4,4'-DDD	1.99	2.26		ug/L		114	70 - 130	0	20
4,4'-DDE	1.99	2.18		ug/L		109	70 - 130	2	20
4,4'-DDT	1.99	2.20		ug/L		111	70 - 130	1	20
Acenaphthene	1.99	1.99		ug/L		100	70 - 130	1	20
Acenaphthylene	1.99	1.95		ug/L		98	70 - 130	4	20
Acetochlor	1.99	1.85		ug/L		93	70 - 130	1	20
Alachlor	1.99	2.02		ug/L		102	70 - 130	1	20
alpha-BHC	1.99	2.08		ug/L		105	70 - 130	1	20

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QC Sample Results

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

Job ID: 380-52637-1

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

Lab Sample ID: LCSD 380-45783/24-A
Matrix: Water
Analysis Batch: 46023

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 45783

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	RPD Limit
							Limits	RPD		
alpha-Chlordane	1.99	2.32		ug/L		117	70 - 130	2	20	
Anthracene	1.99	1.86		ug/L		94	70 - 130	8	20	
Atrazine	1.99	2.47		ug/L		124	70 - 130	1	20	
Benz(a)anthracene	1.99	2.27		ug/L		114	70 - 130	2	20	
Benzo[a]pyrene	1.99	2.00		ug/L		100	70 - 130	5	20	
Benzo[b]fluoranthene	1.99	2.24		ug/L		113	70 - 130	0	20	
Benzo[g,h,i]perylene	1.99	1.70		ug/L		86	70 - 130	5	20	
Benzo[k]fluoranthene	1.99	2.45		ug/L		123	70 - 130	6	20	
beta-BHC	1.99	2.15		ug/L		108	70 - 130	0	20	
Bis(2-ethylhexyl) phthalate	1.99	1.82		ug/L		92	70 - 130	1	20	
Butachlor	1.99	2.23		ug/L		112	70 - 130	2	20	
Butylbenzylphthalate	1.99	2.32		ug/L		116	70 - 130	0	20	
Chlorobenzilate	1.99	1.90		ug/L		96	70 - 130	2	20	
Chloroneb	1.99	2.14		ug/L		108	70 - 130	2	20	
Chlorothalonil (Draconil, Bravo)	1.99	1.81		ug/L		91	70 - 130	9	20	
Chlorpyrifos	1.99	2.20		ug/L		111	70 - 130	2	20	
Chrysene	1.99	2.21		ug/L		111	70 - 130	2	20	
delta-BHC	1.99	1.89		ug/L		95	70 - 130	1	20	
Di(2-ethylhexyl)adipate	1.99	2.03		ug/L		102	70 - 130	3	20	
Dibenz(a,h)anthracene	1.99	1.98		ug/L		99	70 - 130	7	20	
Diclorvos (DDVP)	1.99	1.74		ug/L		88	70 - 130	1	20	
Dieldrin	1.99	2.03		ug/L		102	70 - 130	2	20	
Diethylphthalate	1.99	2.15		ug/L		108	70 - 130	0	20	
Dimethylphthalate	1.99	2.18		ug/L		110	70 - 130	1	20	
Di-n-butyl phthalate	3.98	4.24		ug/L		107	70 - 130	1	20	
Di-n-octyl phthalate	1.99	1.70		ug/L		85	70 - 130	0	20	
Endosulfan I (Alpha)	1.99	1.87		ug/L		94	70 - 130	1	20	
Endosulfan II (Beta)	1.99	2.09		ug/L		105	70 - 130	0	20	
Endosulfan sulfate	1.99	2.22		ug/L		112	70 - 130	1	20	
Endrin	1.99	2.16		ug/L		109	70 - 130	1	20	
Endrin aldehyde	1.99	1.70		ug/L		86	70 - 130	16	20	
EPTC	1.99	2.17		ug/L		109	70 - 130	2	20	
Fluoranthene	1.99	2.24		ug/L		113	70 - 130	1	20	
Fluorene	1.99	2.18		ug/L		110	70 - 130	1	20	
gamma-Chlordane	1.99	2.22		ug/L		112	70 - 130	2	20	
Heptachlor	1.99	2.13		ug/L		107	70 - 130	1	20	
Heptachlor epoxide (isomer B)	1.99	2.26		ug/L		114	70 - 130	2	20	
Hexachlorobenzene	1.99	2.23		ug/L		112	70 - 130	1	20	
Hexachlorocyclopentadiene	1.99	2.15		ug/L		108	70 - 130	2	20	
Indeno[1,2,3-cd]pyrene	1.99	1.96		ug/L		99	70 - 130	8	20	
Isophorone	1.99	1.93		ug/L		97	70 - 130	2	20	
Lindane	1.99	2.08		ug/L		105	70 - 130	3	20	
Malathion	1.99	1.99		ug/L		100	70 - 130	1	20	
Methoxychlor	1.99	2.31		ug/L		116	70 - 130	2	20	
Metolachlor	1.99	2.13		ug/L		107	70 - 130	1	20	
Molinate	1.99	2.16		ug/L		109	70 - 130	2	20	
Naphthalene	1.99	2.05		ug/L		103	70 - 130	1	20	
Parathion	1.99	2.24		ug/L		113	70 - 130	1	20	
Pendimethalin (Penoxaline)	1.99	2.10		ug/L		106	70 - 130	1	20	

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QC Sample Results

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

Job ID: 380-52637-1

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

Lab Sample ID: LCSD 380-45783/24-A
Matrix: Water
Analysis Batch: 46023

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 45783

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Phenanthrene	1.99	1.97		ug/L		99	70 - 130	3	20
Propachlor	1.99	2.07	^3+	ug/L		104	70 - 130	1	20
Pyrene	1.99	2.26		ug/L		114	70 - 130	1	20
Simazine	1.99	2.52		ug/L		127	70 - 130	1	20
Terbacil	1.99	1.90	*1	ug/L		96	70 - 130	23	20
Terbutylazine	1.99	2.50		ug/L		126	70 - 130	2	20
Thiobencarb	1.99	2.09		ug/L		105	70 - 130	0	20
trans-Nonachlor	1.99	2.42		ug/L		122	70 - 130	1	20
Trifluralin	1.99	1.98		ug/L		100	70 - 130	2	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2-Nitro-m-xylene	94		70 - 130
Perylene-d12	81		70 - 130
Triphenylphosphate	112		70 - 130

Lab Sample ID: LCSD 380-45783/24-A
Matrix: Water
Analysis Batch: 46143

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 45783

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Bromacil	1.99	1.43	*1	ug/L		72	70 - 130	40	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2-Nitro-m-xylene	96		70 - 130
Perylene-d12	83		70 - 130
Triphenylphosphate	120		70 - 130

Lab Sample ID: MRL 380-45783/22-A
Matrix: Water
Analysis Batch: 46023

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 45783

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
1-Methylnaphthalene	0.0991	0.114		ug/L		115	50 - 150
2,4'-DDD	0.0991	0.125		ug/L		126	50 - 150
2,4'-DDE	0.0991	0.108		ug/L		109	50 - 150
2,4'-DDT	0.0991	0.100		ug/L		101	50 - 150
2,4-Dinitrotoluene	0.0991	0.0873	J	ug/L		88	50 - 150
2,6-Dinitrotoluene	0.0991	0.0925	J	ug/L		93	50 - 150
2-Methylnaphthalene	0.0991	0.112		ug/L		113	50 - 150
4,4'-DDD	0.0991	0.105		ug/L		106	50 - 150
4,4'-DDE	0.0991	0.0901	J	ug/L		91	50 - 150
4,4'-DDT	0.0991	0.141		ug/L		142	50 - 150
Acenaphthene	0.0991	0.103		ug/L		104	50 - 150
Acenaphthylene	0.0991	0.0943	J	ug/L		95	50 - 150
Acetochlor	0.0496	0.0454	J	ug/L		92	50 - 150
Alachlor	0.0496	0.0496	J	ug/L		100	50 - 150
alpha-BHC	0.0991	0.102		ug/L		103	50 - 150
alpha-Chlordane	0.0248	<0.029		ug/L		84	50 - 150

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-52637-1

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

Lab Sample ID: MRL 380-45783/22-A
Matrix: Water
Analysis Batch: 46023

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 45783

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Anthracene	0.0198	0.0205		ug/L		103	50 - 150
Atrazine	0.0496	0.0560		ug/L		113	50 - 150
Benz(a)anthracene	0.0496	0.0501		ug/L		101	50 - 150
Benzo[a]pyrene	0.0198	0.0173	J	ug/L		87	50 - 150
Benzo[b]fluoranthene	0.0198	0.0208		ug/L		105	50 - 150
Benzo[g,h,i]perylene	0.0496	0.0577		ug/L		117	50 - 150
Benzo[k]fluoranthene	0.0198	0.0206		ug/L		104	50 - 150
beta-BHC	0.0991	0.101		ug/L		102	50 - 150
Bis(2-ethylhexyl) phthalate	0.595	0.631		ug/L		106	50 - 150
Bromacil	0.0991	0.143		ug/L		144	50 - 150
Butachlor	0.0496	0.0605		ug/L		122	50 - 150
Butylbenzylphthalate	0.149	0.175	J	ug/L		118	50 - 150
Chlorobenzilate	0.0991	0.118		ug/L		119	50 - 150
Chloroneb	0.0991	0.112		ug/L		113	50 - 150
Chlorothalonil (Draconil, Bravo)	0.0991	0.122		ug/L		123	50 - 150
Chlorpyrifos	0.0496	0.0577		ug/L		117	50 - 150
Chrysene	0.0198	0.0231		ug/L		117	50 - 150
delta-BHC	0.0991	0.104		ug/L		105	50 - 150
Di(2-ethylhexyl)adipate	0.297	0.362	J	ug/L		122	50 - 150
Dibenz(a,h)anthracene	0.0496	0.0617		ug/L		124	50 - 150
Diclorvos (DDVP)	0.0496	0.0527		ug/L		106	50 - 150
Dieldrin	0.0991	0.116	J	ug/L		117	50 - 150
Diethylphthalate	0.149	0.174	J	ug/L		117	50 - 150
Dimethylphthalate	0.297	0.295	J	ug/L		99	50 - 150
Di-n-butyl phthalate	0.297	0.374	J	ug/L		126	49 - 243
Di-n-octyl phthalate	0.0991	0.109		ug/L		110	50 - 150
Endosulfan I (Alpha)	0.0991	0.0883	J	ug/L		89	50 - 150
Endosulfan II (Beta)	0.0991	0.123		ug/L		124	50 - 150
Endosulfan sulfate	0.0991	0.0939	J	ug/L		95	50 - 150
Endrin	0.0991	0.119		ug/L		120	50 - 150
Endrin aldehyde	0.0991	<0.083		ug/L		76	50 - 150
EPTC	0.0991	0.105		ug/L		106	50 - 150
Fluoranthene	0.0496	0.0570	J	ug/L		115	50 - 150
Fluorene	0.0496	0.0520		ug/L		105	50 - 150
gamma-Chlordane	0.0248	0.0265	J	ug/L		107	50 - 150
Heptachlor	0.0396	0.0430		ug/L		108	50 - 150
Heptachlor epoxide (isomer B)	0.0496	0.0474	J	ug/L		96	50 - 150
Hexachlorobenzene	0.0496	0.0500		ug/L		101	50 - 150
Hexachlorocyclopentadiene	0.0496	0.0451	J	ug/L		91	50 - 150
Indeno[1,2,3-cd]pyrene	0.0496	0.0623		ug/L		126	50 - 150
Isophorone	0.0991	0.104	J	ug/L		105	50 - 150
Lindane	0.0396	0.0462		ug/L		117	50 - 150
Malathion	0.0991	0.119		ug/L		120	50 - 150
Methoxychlor	0.0991	0.121		ug/L		123	50 - 150
Metolachlor	0.0496	0.0539		ug/L		109	50 - 150
Molinate	0.0991	0.105		ug/L		106	50 - 150
Naphthalene	0.0991	0.112	J	ug/L		113	50 - 150
Parathion	0.0991	0.135		ug/L		136	50 - 150
Pendimethalin (Penoxaline)	0.0991	0.135		ug/L		136	50 - 150

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QC Sample Results

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

Job ID: 380-52637-1

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

Lab Sample ID: MRL 380-45783/22-A
Matrix: Water
Analysis Batch: 46023

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 45783

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Phenanthrene	0.0198	0.0229	J	ug/L		115	50 - 150
Propachlor	0.0496	0.0774	^3+	ug/L		156	50 - 150
Pyrene	0.0496	0.0560		ug/L		113	50 - 150
Simazine	0.0496	0.0598		ug/L		121	50 - 150
Terbacil	0.0991	0.104		ug/L		105	50 - 150
Terbutylazine	0.0991	0.111		ug/L		112	50 - 150
Thiobencarb	0.0991	0.112	J	ug/L		113	50 - 150
trans-Nonachlor	0.0248	0.0276	J	ug/L		111	50 - 150
Trifluralin	0.0991	0.124		ug/L		125	50 - 150

Surrogate	MRL %Recovery	MRL Qualifier	Limits
2-Nitro-m-xylene	95		70 - 130
Perylene-d12	84		70 - 130
Triphenylphosphate	110		70 - 130

Lab Sample ID: 380-52473-AJ-1-A MS
Matrix: Water
Analysis Batch: 46023

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 45783

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1-Methylnaphthalene	<0.099		1.97	2.07		ug/L		105	70 - 130
2,4'-DDD	<0.099		1.97	2.16		ug/L		109	70 - 130
2,4'-DDE	<0.099		1.97	2.11		ug/L		107	70 - 130
2,4'-DDT	<0.099		1.97	2.41		ug/L		122	70 - 130
2,4-Dinitrotoluene	<0.099		1.97	2.42		ug/L		122	70 - 130
2,6-Dinitrotoluene	<0.099		1.97	2.33		ug/L		118	70 - 130
2-Methylnaphthalene	<0.099		1.97	2.10		ug/L		106	70 - 130
4,4'-DDD	<0.099		1.97	2.36		ug/L		120	70 - 130
4,4'-DDE	<0.099		1.97	2.36		ug/L		120	70 - 130
4,4'-DDT	<0.099		1.97	2.39		ug/L		121	70 - 130
Acenaphthene	<0.099		1.97	1.98		ug/L		100	70 - 130
Acenaphthylene	<0.099		1.97	2.08		ug/L		105	70 - 130
Acetochlor	<0.099		1.97	1.93		ug/L		98	70 - 130
Alachlor	<0.049		1.97	2.11		ug/L		107	70 - 130
alpha-BHC	<0.099		1.97	2.10		ug/L		106	70 - 130
alpha-Chlordane	<0.049		1.97	2.42		ug/L		123	70 - 130
Anthracene	<0.020		1.97	2.01		ug/L		102	70 - 130
Atrazine	0.063		1.97	2.57		ug/L		127	70 - 130
Benz(a)anthracene	<0.049		1.97	2.41		ug/L		122	70 - 130
Benzo[a]pyrene	<0.020		1.97	2.19		ug/L		111	70 - 130
Benzo[b]fluoranthene	<0.020		1.97	2.37		ug/L		120	70 - 130
Benzo[g,h,i]perylene	<0.049		1.97	1.76		ug/L		89	70 - 130
Benzo[k]fluoranthene	<0.020		1.97	2.48		ug/L		125	70 - 130
beta-BHC	<0.099		1.97	2.15		ug/L		109	70 - 130
Bis(2-ethylhexyl) phthalate	<0.59		1.97	2.03		ug/L		103	70 - 130
Bromacil	<0.099	*1	1.97	2.44		ug/L		124	70 - 130
Butachlor	<0.049		1.97	2.36		ug/L		119	70 - 130
Butylbenzylphthalate	<0.49		1.97	2.43		ug/L		123	70 - 130

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QC Sample Results

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

Job ID: 380-52637-1

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

Lab Sample ID: 380-52473-AJ-1-A MS
Matrix: Water
Analysis Batch: 46023

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 45783

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec
	Result	Qualifier	Added	Result	Qualifier				Limits
Chlorobenzilate	<0.099		1.97	2.21		ug/L		112	70 - 130
Chloroneb	<0.099		1.97	2.19		ug/L		111	70 - 130
Chlorothalonil (Draconil, Bravo)	<0.099		1.97	2.01		ug/L		102	70 - 130
Chlorpyrifos	<0.049		1.97	2.22		ug/L		113	70 - 130
Chrysene	<0.020		1.97	2.16		ug/L		110	70 - 130
delta-BHC	<0.099		1.97	1.91		ug/L		97	70 - 130
Di(2-ethylhexyl)adipate	<0.59		1.97	2.24		ug/L		107	70 - 130
Dibenz(a,h)anthracene	<0.049		1.97	2.15		ug/L		109	70 - 130
Diclorvos (DDVP)	<0.049		1.97	1.76		ug/L		89	70 - 130
Dieldrin	<0.20		1.97	2.09		ug/L		106	70 - 130
Diethylphthalate	<0.49		1.97	2.17		ug/L		110	70 - 130
Dimethylphthalate	<0.49		1.97	2.22		ug/L		113	70 - 130
Di-n-butyl phthalate	<0.99		3.95	4.35		ug/L		110	70 - 130
Di-n-octyl phthalate	<0.099		1.97	1.98		ug/L		100	70 - 130
Endosulfan I (Alpha)	<0.099		1.97	1.94		ug/L		98	70 - 130
Endosulfan II (Beta)	<0.099		1.97	2.19		ug/L		111	70 - 130
Endosulfan sulfate	<0.099		1.97	2.34		ug/L		118	70 - 130
Endrin	<0.099		1.97	2.09		ug/L		106	70 - 130
Endrin aldehyde	<0.099		1.97	1.89		ug/L		96	70 - 130
EPTC	<0.099		1.97	2.32		ug/L		117	70 - 130
Fluoranthene	<0.099		1.97	2.28		ug/L		116	70 - 130
Fluorene	<0.049		1.97	2.16		ug/L		109	70 - 130
gamma-Chlordane	<0.049		1.97	2.39		ug/L		121	70 - 130
Heptachlor	<0.039		1.97	2.12		ug/L		107	70 - 130
Heptachlor epoxide (isomer B)	<0.049		1.97	2.45		ug/L		124	70 - 130
Hexachlorobenzene	<0.049		1.97	2.26		ug/L		115	70 - 130
Hexachlorocyclopentadiene	<0.049		1.97	2.17		ug/L		110	70 - 130
Indeno[1,2,3-cd]pyrene	<0.049		1.97	2.10		ug/L		107	70 - 130
Isophorone	<0.49		1.97	1.91		ug/L		97	70 - 130
Lindane	<0.039		1.97	2.01		ug/L		102	70 - 130
Malathion	<0.099		1.97	2.11		ug/L		107	70 - 130
Methoxychlor	<0.099		1.97	2.42		ug/L		123	70 - 130
Metolachlor	<0.049		1.97	2.35		ug/L		119	70 - 130
Molinate	<0.099		1.97	2.32		ug/L		117	70 - 130
Naphthalene	<0.30		1.97	2.02		ug/L		102	70 - 130
Parathion	<0.099		1.97	2.46		ug/L		124	70 - 130
Pendimethalin (Penoxaline)	<0.099		1.97	2.29		ug/L		116	70 - 130
Phenanthrene	<0.039		1.97	2.03		ug/L		103	70 - 130
Propachlor	<0.049	^3+	1.97	2.13		ug/L		108	70 - 130
Pyrene	<0.049		1.97	2.34		ug/L		119	70 - 130
Simazine	<0.049		1.97	2.54		ug/L		128	70 - 130
Terbacil	<0.099	F1 *1	1.97	2.63	F1	ug/L		133	70 - 130
Terbutylazine	<0.099		1.97	2.52		ug/L		128	70 - 130
Thiobencarb	<0.20		1.97	2.15		ug/L		109	70 - 130
trans-Nonachlor	<0.049	F1	1.97	2.62	F1	ug/L		132	70 - 130
Trifluralin	<0.099		1.97	2.08		ug/L		106	70 - 130

QC Sample Results

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

Job ID: 380-52637-1

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

Lab Sample ID: 380-52473-AJ-1-A MS
Matrix: Water
Analysis Batch: 46023

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 45783

<i>Surrogate</i>	<i>%Recovery</i>	<i>MS MS Qualifier</i>	<i>Limits</i>
2-Nitro-m-xylene	94		70 - 130
Perylene-d12	89		70 - 130
Triphenylphosphate	120		70 - 130

Lab Sample ID: 380-52480-AK-1-A DU
Matrix: Water
Analysis Batch: 46023

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 45783

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
1-Methylnaphthalene	<0.099		<0.099		ug/L		NC	20
2,4'-DDD	<0.099		<0.099		ug/L		NC	20
2,4'-DDE	<0.099		<0.099		ug/L		NC	20
2,4'-DDT	<0.099		<0.099		ug/L		NC	20
2,4-Dinitrotoluene	<0.099		<0.099		ug/L		NC	20
2,6-Dinitrotoluene	<0.099		<0.099		ug/L		NC	20
2-Methylnaphthalene	<0.099		<0.099		ug/L		NC	20
4,4'-DDD	<0.099		<0.099		ug/L		NC	20
4,4'-DDE	<0.099		<0.099		ug/L		NC	20
4,4'-DDT	<0.099		<0.099		ug/L		NC	20
Acenaphthene	<0.099		<0.099		ug/L		NC	20
Acenaphthylene	<0.099		<0.099		ug/L		NC	20
Acetochlor	<0.099		<0.099		ug/L		NC	20
Alachlor	<0.049		<0.049		ug/L		NC	20
alpha-BHC	<0.099		<0.099		ug/L		NC	20
alpha-Chlordane	<0.049		<0.049		ug/L		NC	20
Anthracene	<0.020		<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	<0.020		<0.020		ug/L		NC	20
Benzo[b]fluoranthene	<0.020		<0.020		ug/L		NC	20
Benzo[g,h,i]perylene	<0.049		<0.049		ug/L		NC	20
Benzo[k]fluoranthene	<0.020		<0.020		ug/L		NC	20
beta-BHC	<0.099		<0.099		ug/L		NC	20
Bis(2-ethylhexyl) phthalate	<0.59		<0.59		ug/L		NC	20
Bromacil	<0.099	*1	<0.099	*1	ug/L		NC	20
Butachlor	<0.049		<0.049		ug/L		NC	20
Butylbenzylphthalate	<0.49		<0.49		ug/L		NC	20
Chlorobenzilate	<0.099		<0.099		ug/L		NC	20
Chloroneb	<0.099		<0.099		ug/L		NC	20
Chlorothalonil (Draconil, Bravo)	<0.099		<0.099		ug/L		NC	20
Chlorpyrifos	<0.049		<0.049		ug/L		NC	20
Chrysene	<0.020		<0.020		ug/L		NC	20
delta-BHC	<0.099		<0.099		ug/L		NC	20
Di(2-ethylhexyl)adipate	<0.59		<0.59		ug/L		NC	20
Dibenz(a,h)anthracene	<0.049		<0.049		ug/L		NC	20
Diclorvos (DDVP)	<0.049		<0.049		ug/L		NC	20
Dieldrin	<0.20		<0.20		ug/L		NC	20
Diethylphthalate	<0.49		<0.49		ug/L		NC	20

QC Sample Results

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

Job ID: 380-52637-1

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

Lab Sample ID: 380-52480-AK-1-A DU
Matrix: Water
Analysis Batch: 46023

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 45783

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Dimethylphthalate	<0.49		<0.49		ug/L		NC	20
Di-n-butyl phthalate	<0.99		<0.99		ug/L		NC	20
Di-n-octyl phthalate	<0.099		<0.099		ug/L		NC	20
Endosulfan I (Alpha)	<0.099		<0.099		ug/L		NC	20
Endosulfan II (Beta)	<0.099		<0.099		ug/L		NC	20
Endosulfan sulfate	<0.099		<0.099		ug/L		NC	20
Endrin	<0.099		<0.099		ug/L		NC	20
Endrin aldehyde	<0.099		<0.099		ug/L		NC	20
EPTC	<0.099		<0.099		ug/L		NC	20
Fluoranthene	<0.099		<0.099		ug/L		NC	20
Fluorene	<0.049		<0.049		ug/L		NC	20
gamma-Chlordane	<0.049		<0.049		ug/L		NC	20
Heptachlor	<0.040		<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	<0.040		<0.039		ug/L		NC	20
Malathion	<0.099		<0.099		ug/L		NC	20
Methoxychlor	<0.099		<0.099		ug/L		NC	20
Metolachlor	<0.049		<0.049		ug/L		NC	20
Molinate	<0.099		<0.099		ug/L		NC	20
Naphthalene	<0.30		<0.30		ug/L		NC	20
Parathion	<0.099		<0.099		ug/L		NC	20
Pendimethalin (Penoxaline)	<0.099		<0.099		ug/L		NC	20
Phenanthrene	<0.040		<0.039		ug/L		NC	20
Propachlor	<0.049	^3+	<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	<0.099	*1	<0.099	*1	ug/L		NC	20
Terbutylazine	<0.099		<0.099		ug/L		NC	20
Thiobencarb	<0.20		<0.20		ug/L		NC	20
Total Permethrin (mixed isomers)	<0.20		<0.20		ug/L		NC	20
trans-Nonachlor	<0.049		<0.049		ug/L		NC	20
Trifluralin	<0.099		<0.099		ug/L		NC	20

Surrogate	DU %Recovery	DU Qualifier	Limits
2-Nitro-m-xylene	93		70 - 130
Perylene-d12	82		70 - 130
Triphenylphosphate	120		70 - 130

QC Sample Results

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

Job ID: 380-52637-1

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

Lab Sample ID: MBL 380-47534/19-A
Matrix: Water
Analysis Batch: 47873

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 47534

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0	ng/L		07/16/23 15:45	07/19/23 11:10	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0	ng/L		07/16/23 15:45	07/19/23 11:10	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		07/16/23 15:45	07/19/23 11:10	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		07/16/23 15:45	07/19/23 11:10	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		07/16/23 15:45	07/19/23 11:10	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		07/16/23 15:45	07/19/23 11:10	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		07/16/23 15:45	07/19/23 11:10	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		07/16/23 15:45	07/19/23 11:10	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		07/16/23 15:45	07/19/23 11:10	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		07/16/23 15:45	07/19/23 11:10	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		07/16/23 15:45	07/19/23 11:10	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		07/16/23 15:45	07/19/23 11:10	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		07/16/23 15:45	07/19/23 11:10	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		07/16/23 15:45	07/19/23 11:10	1
Perfluorobutanoic acid (PFBA)	<0.69		2.0	ng/L		07/16/23 15:45	07/19/23 11:10	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<0.38		2.0	ng/L		07/16/23 15:45	07/19/23 11:10	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<0.37		2.0	ng/L		07/16/23 15:45	07/19/23 11:10	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<0.48		2.0	ng/L		07/16/23 15:45	07/19/23 11:10	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.47		2.0	ng/L		07/16/23 15:45	07/19/23 11:10	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<0.25		2.0	ng/L		07/16/23 15:45	07/19/23 11:10	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.46		2.0	ng/L		07/16/23 15:45	07/19/23 11:10	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.15		2.0	ng/L		07/16/23 15:45	07/19/23 11:10	1
Perfluoropentanoic acid (PFPeA)	<0.38		2.0	ng/L		07/16/23 15:45	07/19/23 11:10	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.36		2.0	ng/L		07/16/23 15:45	07/19/23 11:10	1
Perfluoropentanesulfonic acid (PFPeS)	<0.39		2.0	ng/L		07/16/23 15:45	07/19/23 11:10	1

Isotope Dilution	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	84		50 - 200	07/16/23 15:45	07/19/23 11:10	1
13C6 PFDA	96		50 - 200	07/16/23 15:45	07/19/23 11:10	1
13C5 PFHxA	96		50 - 200	07/16/23 15:45	07/19/23 11:10	1
13C4 PFHpA	89		50 - 200	07/16/23 15:45	07/19/23 11:10	1
13C8 PFOA	96		50 - 200	07/16/23 15:45	07/19/23 11:10	1
13C9 PFNA	97		50 - 200	07/16/23 15:45	07/19/23 11:10	1
13C7 PFUnA	96		50 - 200	07/16/23 15:45	07/19/23 11:10	1
13C2 PFDoA	101		50 - 200	07/16/23 15:45	07/19/23 11:10	1
13C4 PFBA	102		50 - 200	07/16/23 15:45	07/19/23 11:10	1
13C5 PFPeA	99		50 - 200	07/16/23 15:45	07/19/23 11:10	1
13C3 PFBS	96		50 - 200	07/16/23 15:45	07/19/23 11:10	1
13C3 PFHxS	95		50 - 200	07/16/23 15:45	07/19/23 11:10	1

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-52637-1

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

Lab Sample ID: MBL 380-47534/19-A
Matrix: Water
Analysis Batch: 47873

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 47534

<i>Isotope Dilution</i>	<i>MBL %Recovery</i>	<i>MBL Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C8 PFOS	102		50 - 200	07/16/23 15:45	07/19/23 11:10	1
13C2-4:2-FTS	123		50 - 200	07/16/23 15:45	07/19/23 11:10	1
13C2-6:2-FTS	114		50 - 200	07/16/23 15:45	07/19/23 11:10	1
13C2-8:2-FTS	124		50 - 200	07/16/23 15:45	07/19/23 11:10	1

Lab Sample ID: LCS 380-47534/21-A
Matrix: Water
Analysis Batch: 47873

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 47534

<i>Analyte</i>	<i>Spike Added</i>	<i>LCS Result</i>	<i>LCS Qualifier</i>	<i>Unit</i>	<i>D</i>	<i>%Rec</i>	<i>%Rec Limits</i>
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	60.1	55.6		ng/L		92	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	60.1	54.7		ng/L		91	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	60.1	54.9		ng/L		91	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	60.1	76.4		ng/L		127	70 - 130
Perfluorobutanesulfonic acid (PFBS)	60.1	58.4		ng/L		97	70 - 130
Perfluorodecanoic acid (PFDA)	60.1	60.7		ng/L		101	70 - 130
Perfluorododecanoic acid (PFDoA)	60.1	58.8		ng/L		98	70 - 130
Perfluoroheptanoic acid (PFHpA)	60.1	60.7		ng/L		101	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	60.1	59.2		ng/L		98	70 - 130
Perfluorohexanoic acid (PFHxA)	60.1	59.1		ng/L		98	70 - 130
Perfluorononanoic acid (PFNA)	60.1	59.1		ng/L		98	70 - 130
Perfluorooctanesulfonic acid (PFOS)	60.1	56.1		ng/L		93	70 - 130
Perfluorooctanoic acid (PFOA)	60.1	56.5		ng/L		94	70 - 130
Perfluoroundecanoic acid (PFUnA)	60.1	58.3		ng/L		97	70 - 130
Perfluorobutanoic acid (PFBA)	60.1	58.6		ng/L		97	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	60.1	61.9		ng/L		103	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	60.1	63.6		ng/L		106	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	60.1	57.3		ng/L		95	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	60.1	52.6		ng/L		88	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	60.1	54.6		ng/L		91	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	60.1	58.8		ng/L		98	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	60.1	65.4		ng/L		109	70 - 130
Perfluoropentanoic acid (PFPeA)	60.1	62.8		ng/L		104	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	60.1	57.4		ng/L		95	70 - 130

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QC Sample Results

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

Job ID: 380-52637-1

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

Lab Sample ID: LCS 380-47534/21-A
Matrix: Water
Analysis Batch: 47873

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 47534

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoropentanesulfonic acid (PFPeS)	60.1	58.0		ng/L		96	70 - 130
LCS LCS							
Isotope Dilution	%Recovery	Qualifier	Limits				
13C3 HFPO-DA	80		50 - 200				
13C6 PFDA	92		50 - 200				
13C5 PFHxA	92		50 - 200				
13C4 PFHpA	89		50 - 200				
13C8 PFOA	96		50 - 200				
13C9 PFNA	93		50 - 200				
13C7 PFUnA	95		50 - 200				
13C2 PFDoA	97		50 - 200				
13C4 PFBA	94		50 - 200				
13C5 PFPeA	90		50 - 200				
13C3 PFBS	95		50 - 200				
13C3 PFHxS	94		50 - 200				
13C8 PFOS	99		50 - 200				
13C2-4:2-FTS	115		50 - 200				
13C2-6:2-FTS	113		50 - 200				
13C2-8:2-FTS	94		50 - 200				

Lab Sample ID: MRL 380-47534/20-A
Matrix: Water
Analysis Batch: 47873

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 47534

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.00	1.74	J	ng/L		87	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.00	1.69	J	ng/L		84	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	1.84	J	ng/L		92	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	2.35	J	ng/L		117	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.00	2.02	J	ng/L		101	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	1.94	J	ng/L		97	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	1.90	J	ng/L		95	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	2.15	J	ng/L		107	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.00	1.97	J	ng/L		98	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	1.99	J	ng/L		99	50 - 150
Perfluorononanoic acid (PFNA)	2.00	1.99	J	ng/L		99	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.00	1.91	J	ng/L		95	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	2.02	J	ng/L		101	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	1.86	J	ng/L		93	50 - 150
Perfluorobutanoic acid (PFBA)	2.00	2.02	J	ng/L		101	50 - 150

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-52637-1

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

Lab Sample ID: MRL 380-47534/20-A
Matrix: Water
Analysis Batch: 47873

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 47534

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	2.00	2.10	J	ng/L		105	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	2.00	2.18	J	ng/L		109	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	1.76	J	ng/L		88	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	2.00	1.66	J	ng/L		83	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.00	2.07	J	ng/L		103	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.00	2.02	J	ng/L		101	50 - 150
Perfluoropentanoic acid (PFPeA)	2.00	2.13	J	ng/L		106	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	2.00	1.92	J	ng/L		96	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	2.00	1.79	J	ng/L		90	50 - 150

Isotope Dilution	MRL %Recovery	MRL Qualifier	MRL Limits
13C3 HFPO-DA	75		50 - 200
13C6 PFDA	93		50 - 200
13C5 PFHxA	89		50 - 200
13C4 PFHpA	81		50 - 200
13C8 PFOA	89		50 - 200
13C9 PFNA	92		50 - 200
13C7 PFUnA	91		50 - 200
13C2 PFDoA	96		50 - 200
13C4 PFBA	95		50 - 200
13C5 PFPeA	91		50 - 200
13C3 PFBS	95		50 - 200
13C3 PFHxS	89		50 - 200
13C8 PFOS	98		50 - 200
13C2-4:2-FTS	126		50 - 200
13C2-6:2-FTS	113		50 - 200
13C2-8:2-FTS	94		50 - 200

Lab Sample ID: 380-52749-E-1-A LMS
Matrix: Water
Analysis Batch: 47873

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 47534

Analyte	Sample Result	Sample Qualifier	Spike Added	LMS Result	LMS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		2.00	1.88	J	ng/L		94	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.00	1.87	J	ng/L		93	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0	*5-	2.00	1.62	J	ng/L		81	50 - 150

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QC Sample Results

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

Job ID: 380-52637-1

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

Lab Sample ID: 380-52749-E-1-A LMS
Matrix: Water
Analysis Batch: 47873

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 47534

Analyte	Sample Result	Sample Qualifier	Spike Added	LMS Result	LMS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0	*5-	2.00	2.70		ng/L		135	50 - 150
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.00	1.97	J	ng/L		98	50 - 150
Perfluorodecanoic acid (PFDA)	<2.0		2.00	2.11		ng/L		105	50 - 150
Perfluorododecanoic acid (PFDoA)	<2.0		2.00	2.06		ng/L		103	50 - 150
Perfluoroheptanoic acid (PFHpA)	<2.0	*5-	2.00	2.16		ng/L		108	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.00	1.99	J	ng/L		99	50 - 150
Perfluorohexanoic acid (PFHxA)	<2.0		2.00	2.19		ng/L		109	50 - 150
Perfluorononanoic acid (PFNA)	<2.0	*5-	2.00	2.09		ng/L		104	50 - 150
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.00	2.02		ng/L		101	50 - 150
Perfluorooctanoic acid (PFOA)	<2.0	*5-	2.00	2.21		ng/L		110	50 - 150
Perfluoroundecanoic acid (PFUnA)	<2.0		2.00	2.04		ng/L		102	50 - 150
Perfluorobutanoic acid (PFBA)	<2.0		2.00	2.11		ng/L		105	50 - 150
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.00	2.07		ng/L		103	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.00	2.28		ng/L		114	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.00	2.10		ng/L		105	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.00	1.64	J	ng/L		82	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.00	1.81	J	ng/L		90	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.00	2.03		ng/L		101	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.00	2.12		ng/L		106	50 - 150
Perfluoropentanoic acid (PFPeA)	<2.0		2.00	2.08		ng/L		104	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.00	1.93	J	ng/L		96	50 - 150
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.00	1.86	J	ng/L		93	50 - 150

Isotope Dilution	LMS %Recovery	LMS Qualifier	LMS Limits
13C3 HFPO-DA	52		50 - 200
13C6 PFDA	89		50 - 200
13C5 PFHxA	69		50 - 200
13C4 PFHpA	69		50 - 200
13C8 PFOA	78		50 - 200
13C9 PFNA	84		50 - 200
13C7 PFUnA	90		50 - 200
13C2 PFDoA	96		50 - 200
13C4 PFBA	74		50 - 200
13C5 PFPeA	68		50 - 200
13C3 PFBS	97		50 - 200
13C3 PFHxS	96		50 - 200
13C8 PFOS	101		50 - 200

QC Sample Results

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

Job ID: 380-52637-1

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

Lab Sample ID: 380-52749-E-1-A LMS
Matrix: Water
Analysis Batch: 47873

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 47534

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
13C2-4:2-FTS	126		50 - 200
13C2-6:2-FTS	114		50 - 200
13C2-8:2-FTS	100		50 - 200

Lab Sample ID: 380-52749-F-1-A LMSD
Matrix: Water
Analysis Batch: 47873

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 47534

<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	1.84	J	ng/L		92	50 - 150	2	50
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		2.00	1.76	J	ng/L		88	50 - 150	6	50
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0	*5-	2.00	1.85	J	ng/L		92	50 - 150	13	50
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0	*5-	2.00	2.56		ng/L		128	50 - 150	5	50
Perfluorobutanesulfonic acid (PFBS)	<2.0		2.00	1.92	J	ng/L		96	50 - 150	3	50
Perfluorodecanoic acid (PFDA)	<2.0		2.00	2.02		ng/L		101	50 - 150	4	50
Perfluorododecanoic acid (PFDoA)	<2.0		2.00	1.97	J	ng/L		98	50 - 150	4	50
Perfluoroheptanoic acid (PFHpA)	<2.0	*5-	2.00	2.13		ng/L		107	50 - 150	1	50
Perfluorohexanesulfonic acid (PFHxS)	<2.0		2.00	1.91	J	ng/L		95	50 - 150	4	50
Perfluorohexanoic acid (PFHxA)	<2.0		2.00	2.11		ng/L		106	50 - 150	4	50
Perfluorononanoic acid (PFNA)	<2.0	*5-	2.00	2.08		ng/L		104	50 - 150	0	50
Perfluorooctanesulfonic acid (PFOS)	<2.0		2.00	1.99	J	ng/L		99	50 - 150	2	50
Perfluorooctanoic acid (PFOA)	<2.0	*5-	2.00	2.06		ng/L		103	50 - 150	7	50
Perfluoroundecanoic acid (PFUnA)	<2.0		2.00	1.95	J	ng/L		98	50 - 150	4	50
Perfluorobutanoic acid (PFBA)	<2.0		2.00	2.08		ng/L		104	50 - 150	2	50
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		2.00	2.06		ng/L		103	50 - 150	0	50
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		2.00	2.05		ng/L		103	50 - 150	11	50
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		2.00	1.91	J	ng/L		95	50 - 150	10	50
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0		2.00	1.85	J	ng/L		92	50 - 150	12	50
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		2.00	1.75	J	ng/L		88	50 - 150	3	50
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		2.00	2.06		ng/L		103	50 - 150	2	50
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		2.00	2.20		ng/L		110	50 - 150	4	50
Perfluoropentanoic acid (PFPeA)	<2.0		2.00	2.18		ng/L		109	50 - 150	5	50
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		2.00	1.97	J	ng/L		98	50 - 150	2	50
Perfluoropentanesulfonic acid (PFPeS)	<2.0		2.00	1.88	J	ng/L		94	50 - 150	1	50

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QC Sample Results

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

Job ID: 380-52637-1

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

Isotope Dilution	LMSD LMSD		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	78		50 - 200
13C6 PFDA	97		50 - 200
13C5 PFHxA	92		50 - 200
13C4 PFHpA	87		50 - 200
13C8 PFOA	95		50 - 200
13C9 PFNA	95		50 - 200
13C7 PFUnA	97		50 - 200
13C2 PFDoA	100		50 - 200
13C4 PFBA	97		50 - 200
13C5 PFPeA	100		50 - 200
13C3 PFBS	99		50 - 200
13C3 PFHxS	96		50 - 200
13C8 PFOS	101		50 - 200
13C2-4:2-FTS	123		50 - 200
13C2-6:2-FTS	118		50 - 200
13C2-8:2-FTS	99		50 - 200

Lab Sample ID: MBL 380-48080/21-A
Matrix: Water
Analysis Batch: 49501

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 48080

Analyte	MBL	MBL	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
11-Chloroeicosfluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0	ng/L		07/19/23 21:35	07/30/23 21:27	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid(9Cl-PF3ONS)	<0.30		2.0	ng/L		07/19/23 21:35	07/30/23 21:27	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		07/19/23 21:35	07/30/23 21:27	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		07/19/23 21:35	07/30/23 21:27	1
Perfluorobutanesulfonic acid (PFBS)	0.416	J	2.0	ng/L		07/19/23 21:35	07/30/23 21:27	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		07/19/23 21:35	07/30/23 21:27	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		07/19/23 21:35	07/30/23 21:27	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		07/19/23 21:35	07/30/23 21:27	1
Perfluorohexanesulfonic acid (PFHxS)	0.427	J	2.0	ng/L		07/19/23 21:35	07/30/23 21:27	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		07/19/23 21:35	07/30/23 21:27	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		07/19/23 21:35	07/30/23 21:27	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		07/19/23 21:35	07/30/23 21:27	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		07/19/23 21:35	07/30/23 21:27	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		07/19/23 21:35	07/30/23 21:27	1
Perfluorobutanoic acid (PFBA)	<0.69		2.0	ng/L		07/19/23 21:35	07/30/23 21:27	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<0.38		2.0	ng/L		07/19/23 21:35	07/30/23 21:27	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<0.37		2.0	ng/L		07/19/23 21:35	07/30/23 21:27	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<0.48		2.0	ng/L		07/19/23 21:35	07/30/23 21:27	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<0.47		2.0	ng/L		07/19/23 21:35	07/30/23 21:27	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	<0.25		2.0	ng/L		07/19/23 21:35	07/30/23 21:27	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	<0.46		2.0	ng/L		07/19/23 21:35	07/30/23 21:27	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	<0.15		2.0	ng/L		07/19/23 21:35	07/30/23 21:27	1

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QC Sample Results

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

Job ID: 380-52637-1

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

Lab Sample ID: MBL 380-48080/21-A
Matrix: Water
Analysis Batch: 49501

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 48080

Analyte	MBL Result	MBL Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanoic acid (PFPeA)	<0.38		2.0	ng/L		07/19/23 21:35	07/30/23 21:27	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.36		2.0	ng/L		07/19/23 21:35	07/30/23 21:27	1
Perfluoropentanesulfonic acid (PFPeS)	<0.39		2.0	ng/L		07/19/23 21:35	07/30/23 21:27	1

Isotope Dilution	MBL %Recovery	MBL Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 HFPO-DA	78		50 - 200	07/19/23 21:35	07/30/23 21:27	1
13C6 PFDA	85		50 - 200	07/19/23 21:35	07/30/23 21:27	1
13C5 PFHxA	88		50 - 200	07/19/23 21:35	07/30/23 21:27	1
13C4 PFHpA	88		50 - 200	07/19/23 21:35	07/30/23 21:27	1
13C8 PFOA	91		50 - 200	07/19/23 21:35	07/30/23 21:27	1
13C9 PFNA	93		50 - 200	07/19/23 21:35	07/30/23 21:27	1
13C7 PFUnA	83		50 - 200	07/19/23 21:35	07/30/23 21:27	1
13C2 PFDoA	89		50 - 200	07/19/23 21:35	07/30/23 21:27	1
13C4 PFBA	93		50 - 200	07/19/23 21:35	07/30/23 21:27	1
13C5 PFPeA	89		50 - 200	07/19/23 21:35	07/30/23 21:27	1
13C3 PFBS	95		50 - 200	07/19/23 21:35	07/30/23 21:27	1
13C3 PFHxS	123		50 - 200	07/19/23 21:35	07/30/23 21:27	1
13C8 PFOS	91		50 - 200	07/19/23 21:35	07/30/23 21:27	1
13C2-4:2-FTS	107		50 - 200	07/19/23 21:35	07/30/23 21:27	1
13C2-6:2-FTS	96		50 - 200	07/19/23 21:35	07/30/23 21:27	1
13C2-8:2-FTS	90		50 - 200	07/19/23 21:35	07/30/23 21:27	1

Lab Sample ID: LCS 380-48080/23-A
Matrix: Water
Analysis Batch: 49501

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 48080

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	120	120		ng/L		100	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	120	128		ng/L		106	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	120	121		ng/L		101	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	120	123		ng/L		103	70 - 130
Perfluorobutanesulfonic acid (PFBS)	120	116		ng/L		96	70 - 130
Perfluorodecanoic acid (PFDA)	120	120		ng/L		100	70 - 130
Perfluorododecanoic acid (PFDoA)	120	122		ng/L		102	70 - 130
Perfluoroheptanoic acid (PFHpA)	120	117		ng/L		98	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	120	114		ng/L		95	70 - 130
Perfluorohexanoic acid (PFHxA)	120	113		ng/L		94	70 - 130
Perfluorononanoic acid (PFNA)	120	120		ng/L		100	70 - 130
Perfluorooctanesulfonic acid (PFOS)	120	121		ng/L		100	70 - 130
Perfluorooctanoic acid (PFOA)	120	121		ng/L		100	70 - 130

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QC Sample Results

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

Job ID: 380-52637-1

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

Lab Sample ID: LCS 380-48080/23-A
Matrix: Water
Analysis Batch: 49501

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 48080

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroundecanoic acid (PFUnA)	120	127		ng/L		106	70 - 130
Perfluorobutanoic acid (PFBA)	120	122		ng/L		102	70 - 130
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	120	118		ng/L		98	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	120	126		ng/L		105	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	120	125		ng/L		104	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	120	118		ng/L		98	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	120	114		ng/L		95	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	120	115		ng/L		96	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	120	123		ng/L		102	70 - 130
Perfluoropentanoic acid (PFPeA)	120	124		ng/L		103	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	120	120		ng/L		100	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	120	93.8		ng/L		78	70 - 130

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	87		50 - 200
13C6 PFDA	89		50 - 200
13C5 PFHxA	89		50 - 200
13C4 PFHpA	92		50 - 200
13C8 PFOA	91		50 - 200
13C9 PFNA	91		50 - 200
13C7 PFUnA	88		50 - 200
13C2 PFDoA	89		50 - 200
13C4 PFBA	91		50 - 200
13C5 PFPeA	88		50 - 200
13C3 PFBS	89		50 - 200
13C3 PFHxS	118		50 - 200
13C8 PFOS	88		50 - 200
13C2-4:2-FTS	85		50 - 200
13C2-6:2-FTS	93		50 - 200
13C2-8:2-FTS	89		50 - 200

Lab Sample ID: LCSD 380-48080/24-A
Matrix: Water
Analysis Batch: 49501

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 48080

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	
								RPD	Limit
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	120	117		ng/L		97	70 - 130	2	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	120	123		ng/L		103	70 - 130	3	30

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QC Sample Results

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

Job ID: 380-52637-1

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

Lab Sample ID: LCSD 380-48080/24-A
Matrix: Water
Analysis Batch: 49501

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 48080

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	120	121		ng/L		101	70 - 130	0	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	120	121		ng/L		101	70 - 130	2	30
Perfluorobutanesulfonic acid (PFBS)	120	122		ng/L		101	70 - 130	5	30
Perfluorodecanoic acid (PFDA)	120	128		ng/L		107	70 - 130	7	30
Perfluorododecanoic acid (PFDoA)	120	128		ng/L		107	70 - 130	5	30
Perfluoroheptanoic acid (PFHpA)	120	119		ng/L		99	70 - 130	2	30
Perfluorohexanesulfonic acid (PFHxS)	120	116		ng/L		97	70 - 130	2	30
Perfluorohexanoic acid (PFHxA)	120	116		ng/L		97	70 - 130	3	30
Perfluorononanoic acid (PFNA)	120	123		ng/L		102	70 - 130	3	30
Perfluorooctanesulfonic acid (PFOS)	120	127		ng/L		105	70 - 130	5	30
Perfluorooctanoic acid (PFOA)	120	124		ng/L		103	70 - 130	3	30
Perfluoroundecanoic acid (PFUnA)	120	133		ng/L		110	70 - 130	4	30
Perfluorobutanoic acid (PFBA)	120	120		ng/L		100	70 - 130	2	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	120	121		ng/L		101	70 - 130	2	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	120	125		ng/L		104	70 - 130	1	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	120	117		ng/L		98	70 - 130	6	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	120	115		ng/L		96	70 - 130	3	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	120	119		ng/L		99	70 - 130	4	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	120	116		ng/L		97	70 - 130	1	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	120	118		ng/L		99	70 - 130	3	30
Perfluoropentanoic acid (PFPeA)	120	121		ng/L		100	70 - 130	3	30
Perfluoroheptanesulfonic acid (PFHpS)	120	127		ng/L		105	70 - 130	5	30
Perfluoropentanesulfonic acid (PFPeS)	120	98.7		ng/L		82	70 - 130	5	30

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	LCSD Limits
13C3 HFPO-DA	96		50 - 200
13C6 PFDA	87		50 - 200
13C5 PFHxA	95		50 - 200
13C4 PFHpA	97		50 - 200
13C8 PFOA	91		50 - 200
13C9 PFNA	93		50 - 200
13C7 PFUnA	85		50 - 200
13C2 PFDoA	86		50 - 200
13C4 PFBA	91		50 - 200
13C5 PFPeA	91		50 - 200
13C3 PFBS	92		50 - 200
13C3 PFHxS	123		50 - 200

QC Sample Results

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

Job ID: 380-52637-1

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

Lab Sample ID: LCSD 380-48080/24-A
Matrix: Water
Analysis Batch: 49501

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 48080

Isotope Dilution	LCSD LCSD		Limits
	%Recovery	Qualifier	
13C8 PFOS	88		50 - 200
13C2-4:2-FTS	100		50 - 200
13C2-6:2-FTS	94		50 - 200
13C2-8:2-FTS	89		50 - 200

Lab Sample ID: MRL 380-48080/22-A
Matrix: Water
Analysis Batch: 49501

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 48080

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	2.00	1.64	J	ng/L		82	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	2.00	1.61	J	ng/L		81	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	2.00	1.96	J	ng/L		98	50 - 150
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	1.94	J	ng/L		97	50 - 150
Perfluorobutanesulfonic acid (PFBS)	2.00	2.24	J	ng/L		112	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	1.85	J	ng/L		93	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	1.79	J	ng/L		89	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.00	1.85	J	ng/L		93	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	2.00	2.27	J	ng/L		113	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	2.13	J	ng/L		106	50 - 150
Perfluorononanoic acid (PFNA)	2.00	1.77	J	ng/L		88	50 - 150
Perfluorooctanesulfonic acid (PFOS)	2.00	1.81	J	ng/L		90	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	1.84	J	ng/L		92	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	1.79	J	ng/L		89	50 - 150
Perfluorobutanoic acid (PFBA)	2.00	1.86	J	ng/L		93	50 - 150
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	2.00	1.90	J	ng/L		95	50 - 150
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	2.00	2.15	J	ng/L		107	50 - 150
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	2.00	2.07	J	ng/L		103	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	2.00	1.71	J	ng/L		85	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	2.00	1.73	J	ng/L		86	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	2.00	1.57	J	ng/L		78	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	2.00	1.93	J	ng/L		97	50 - 150
Perfluoropentanoic acid (PFPeA)	2.00	1.85	J	ng/L		92	50 - 150
Perfluoroheptanesulfonic acid (PFHpS)	2.00	1.84	J	ng/L		92	50 - 150

QC Sample Results

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

Job ID: 380-52637-1

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

Lab Sample ID: MRL 380-48080/22-A
Matrix: Water
Analysis Batch: 49501

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 48080

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoropentanesulfonic acid (PFPeS)	2.00	1.40	J	ng/L		70	50 - 150
Isotope Dilution							
	%Recovery	MRL	MRL Qualifier	Limits			
13C3 HFPO-DA	77			50 - 200			
13C6 PFDA	84			50 - 200			
13C5 PFHxA	85			50 - 200			
13C4 PFHpA	88			50 - 200			
13C8 PFOA	92			50 - 200			
13C9 PFNA	91			50 - 200			
13C7 PFUnA	83			50 - 200			
13C2 PFDoA	88			50 - 200			
13C4 PFBA	97			50 - 200			
13C5 PFPeA	94			50 - 200			
13C3 PFBS	96			50 - 200			
13C3 PFHxS	120			50 - 200			
13C8 PFOS	92			50 - 200			
13C2-4:2-FTS	101			50 - 200			
13C2-6:2-FTS	95			50 - 200			
13C2-8:2-FTS	90			50 - 200			

Lab Sample ID: 380-53105-B-1-A MS
Matrix: Water
Analysis Batch: 49501

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 48080

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		60.1	54.2		ng/L		90	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		60.1	55.3		ng/L		92	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		60.1	55.2		ng/L		92	70 - 130
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<2.0	*5-	60.1	62.2		ng/L		103	70 - 130
Perfluorobutanesulfonic acid (PFBS)	<2.0		60.1	57.1		ng/L		94	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		60.1	60.9		ng/L		101	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		60.1	59.6		ng/L		99	70 - 130
Perfluoroheptanoic acid (PFHpA)	<2.0		60.1	61.6		ng/L		103	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	<2.0		60.1	56.6		ng/L		94	70 - 130
Perfluorohexanoic acid (PFHxA)	<2.0	*5-	60.1	62.3		ng/L		104	70 - 130
Perfluorononanoic acid (PFNA)	<2.0		60.1	58.0		ng/L		97	70 - 130
Perfluorooctanesulfonic acid (PFOS)	<2.0		60.1	57.8		ng/L		96	70 - 130
Perfluorooctanoic acid (PFOA)	<2.0		60.1	59.6		ng/L		99	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		60.1	62.1		ng/L		103	70 - 130
Perfluorobutanoic acid (PFBA)	<2.0		60.1	58.6		ng/L		97	70 - 130

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QC Sample Results

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

Job ID: 380-52637-1

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

Lab Sample ID: 380-53105-B-1-A MS
Matrix: Water
Analysis Batch: 49501

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 48080

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		60.1	59.5		ng/L		99	70 - 130
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		60.1	59.1		ng/L		98	70 - 130
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		60.1	59.0		ng/L		98	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0	*5-	60.1	54.6		ng/L		91	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		60.1	55.6		ng/L		92	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		60.1	49.7		ng/L		83	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		60.1	57.6		ng/L		96	70 - 130
Perfluoropentanoic acid (PFPeA)	<2.0		60.1	59.0		ng/L		98	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		60.1	59.5		ng/L		99	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	<2.0		60.1	46.7		ng/L		78	70 - 130

Isotope Dilution	MS %Recovery	MS Qualifier	MS Limits
13C3 HFPO-DA	56		50 - 200
13C6 PFDA	70		50 - 200
13C5 PFHxA	61		50 - 200
13C4 PFHpA	64		50 - 200
13C8 PFOA	68		50 - 200
13C9 PFNA	71		50 - 200
13C7 PFUnA	75		50 - 200
13C2 PFDoA	78		50 - 200
13C4 PFBA	71		50 - 200
13C5 PFPeA	67		50 - 200
13C3 PFBS	93		50 - 200
13C3 PFHxS	122		50 - 200
13C8 PFOS	91		50 - 200
13C2-4:2-FTS	97		50 - 200
13C2-6:2-FTS	98		50 - 200
13C2-8:2-FTS	86		50 - 200

Lab Sample ID: 380-53105-C-1-A MSD
Matrix: Water
Analysis Batch: 49501

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 48080

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		60.0	55.7		ng/L		93	70 - 130	3	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	<2.0		60.0	56.2		ng/L		94	70 - 130	2	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		60.0	55.4		ng/L		92	70 - 130	0	30

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QC Sample Results

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

Job ID: 380-52637-1

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

Lab Sample ID: 380-53105-C-1-A MSD
Matrix: Water
Analysis Batch: 49501

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 48080

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	*5-	60.0	65.4	*5-	ng/L		109	70 - 130	5	30
Perfluorobutanesulfonic acid (PFBS)	<2.0		60.0	58.6		ng/L		97	70 - 130	3	30
Perfluorodecanoic acid (PFDA)	<2.0		60.0	60.5		ng/L		101	70 - 130	1	30
Perfluorododecanoic acid (PFDoA)	<2.0		60.0	59.2		ng/L		99	70 - 130	1	30
Perfluoroheptanoic acid (PFHpA)	<2.0		60.0	58.1		ng/L		97	70 - 130	6	30
Perfluorohexanesulfonic acid (PFHxS)	<2.0		60.0	57.3		ng/L		95	70 - 130	1	30
Perfluorohexanoic acid (PFHxA)	<2.0	*5-	60.0	58.1		ng/L		97	70 - 130	7	30
Perfluorononanoic acid (PFNA)	<2.0		60.0	59.6		ng/L		99	70 - 130	3	30
Perfluorooctanesulfonic acid (PFOS)	<2.0		60.0	58.9		ng/L		98	70 - 130	2	30
Perfluorooctanoic acid (PFOA)	<2.0		60.0	58.3		ng/L		97	70 - 130	2	30
Perfluoroundecanoic acid (PFUnA)	<2.0		60.0	62.5		ng/L		104	70 - 130	1	30
Perfluorobutanoic acid (PFBA)	<2.0		60.0	58.8		ng/L		98	70 - 130	0	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	<2.0		60.0	62.0		ng/L		103	70 - 130	4	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	<2.0		60.0	62.0		ng/L		103	70 - 130	5	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	<2.0		60.0	58.2		ng/L		97	70 - 130	1	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<2.0	*5-	60.0	50.2		ng/L		84	70 - 130	8	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	<2.0		60.0	56.7		ng/L		95	70 - 130	2	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	<2.0		60.0	50.0		ng/L		83	70 - 130	1	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	<2.0		60.0	56.7		ng/L		94	70 - 130	2	30
Perfluoropentanoic acid (PFPeA)	<2.0		60.0	57.3		ng/L		96	70 - 130	3	30
Perfluoroheptanesulfonic acid (PFHpS)	<2.0		60.0	59.6		ng/L		99	70 - 130	0	30
Perfluoropentanesulfonic acid (PFPeS)	<2.0		60.0	48.8		ng/L		81	70 - 130	5	30

Isotope Dilution	MSD %Recovery	MSD Qualifier	MSD Limits
13C3 HFPO-DA	47	*5-	50 - 200
13C6 PFDA	61		50 - 200
13C5 PFHxA	57		50 - 200
13C4 PFHpA	54		50 - 200
13C8 PFOA	56		50 - 200
13C9 PFNA	61		50 - 200
13C7 PFUnA	66		50 - 200
13C2 PFDoA	73		50 - 200
13C4 PFBA	62		50 - 200
13C5 PFPeA	58		50 - 200
13C3 PFBS	90		50 - 200
13C3 PFHxS	119		50 - 200
13C8 PFOS	90		50 - 200

QC Sample Results

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

Job ID: 380-52637-1

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

Lab Sample ID: 380-53105-C-1-A MSD
Matrix: Water
Analysis Batch: 49501

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 48080

Isotope Dilution	MSD		Limits
	%Recovery	Qualifier	
13C2-4:2-FTS	93		50 - 200
13C2-6:2-FTS	94		50 - 200
13C2-8:2-FTS	86		50 - 200

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

Lab Sample ID: MBL 380-45953/23-A
Matrix: Water
Analysis Batch: 46147

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 45953

Analyte	MBL		RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	<1.0		2.0	ng/L		06/30/23 07:18	07/04/23 15:54	1
Perfluorooctanesulfonic acid (PFOS)	<0.43		2.0	ng/L		06/30/23 07:18	07/04/23 15:54	1
Perfluoroundecanoic acid (PFUnA)	<0.42		2.0	ng/L		06/30/23 07:18	07/04/23 15:54	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<0.58		2.0	ng/L		06/30/23 07:18	07/04/23 15:54	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<0.42		2.0	ng/L		06/30/23 07:18	07/04/23 15:54	1
Perfluorohexanoic acid (PFHxA)	<0.46		2.0	ng/L		06/30/23 07:18	07/04/23 15:54	1
Perfluorododecanoic acid (PFDoA)	<0.54		2.0	ng/L		06/30/23 07:18	07/04/23 15:54	1
Perfluorooctanoic acid (PFOA)	<0.38		2.0	ng/L		06/30/23 07:18	07/04/23 15:54	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	ng/L		06/30/23 07:18	07/04/23 15:54	1
Perfluorohexanesulfonic acid (PFHxS)	<0.32		2.0	ng/L		06/30/23 07:18	07/04/23 15:54	1
Perfluorobutanesulfonic acid (PFBS)	<0.37		2.0	ng/L		06/30/23 07:18	07/04/23 15:54	1
Perfluoroheptanoic acid (PFHpA)	<0.39		2.0	ng/L		06/30/23 07:18	07/04/23 15:54	1
Perfluorononanoic acid (PFNA)	<0.40		2.0	ng/L		06/30/23 07:18	07/04/23 15:54	1
Perfluorotetradecanoic acid (PFTA)	<0.54		2.0	ng/L		06/30/23 07:18	07/04/23 15:54	1
Perfluorotridecanoic acid (PFTrDA)	<0.36		2.0	ng/L		06/30/23 07:18	07/04/23 15:54	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	<0.30		2.0	ng/L		06/30/23 07:18	07/04/23 15:54	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<0.30		2.0	ng/L		06/30/23 07:18	07/04/23 15:54	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.60		2.0	ng/L		06/30/23 07:18	07/04/23 15:54	1

Surrogate	MBL		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
d5-NEtFOSAA	100		70 - 130	06/30/23 07:18	07/04/23 15:54	1
13C2 PFHxA	107		70 - 130	06/30/23 07:18	07/04/23 15:54	1
13C2 PFDA	109		70 - 130	06/30/23 07:18	07/04/23 15:54	1
13C3-GenX	96		70 - 130	06/30/23 07:18	07/04/23 15:54	1

Lab Sample ID: LCS 380-45953/25-A
Matrix: Water
Analysis Batch: 46147

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 45953

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanesulfonic acid (PFOS)	46.3	46.1		ng/L		100	70 - 130

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QC Sample Results

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

Job ID: 380-52637-1

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

Lab Sample ID: LCS 380-45953/25-A
Matrix: Water
Analysis Batch: 46147

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 45953

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroundecanoic acid (PFUnA)	50.0	48.1		ng/L		96	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	50.0	48.2		ng/L		96	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	50.0	47.8		ng/L		96	70 - 130
Perfluorohexanoic acid (PFHxA)	50.0	51.8		ng/L		104	70 - 130
Perfluorododecanoic acid (PFDoA)	50.0	48.7		ng/L		97	70 - 130
Perfluorooctanoic acid (PFOA)	50.0	51.4		ng/L		103	70 - 130
Perfluorodecanoic acid (PFDA)	50.0	50.9		ng/L		102	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	45.6	45.0		ng/L		99	70 - 130
Perfluorobutanesulfonic acid (PFBS)	44.3	44.1		ng/L		100	70 - 130
Perfluoroheptanoic acid (PFHpA)	50.0	51.9		ng/L		104	70 - 130
Perfluorononanoic acid (PFNA)	50.0	51.0		ng/L		102	70 - 130
Perfluorotetradecanoic acid (PFTA)	50.0	48.5		ng/L		97	70 - 130
Perfluorotridecanoic acid (PFTrDA)	50.0	48.7		ng/L		97	70 - 130
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	46.8	45.0		ng/L		96	70 - 130
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	47.3	44.0		ng/L		93	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	47.3	45.9		ng/L		97	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
d5-NEtFOSAA	100		70 - 130
13C2 PFHxA	107		70 - 130
13C2 PFDA	105		70 - 130
13C3-GenX	106		70 - 130

Lab Sample ID: LCSD 380-45953/26-A
Matrix: Water
Analysis Batch: 46147

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 45953

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	50.0	46.8		ng/L		94	70 - 130	0	30
Perfluorooctanesulfonic acid (PFOS)	46.3	46.7		ng/L		101	70 - 130	1	30
Perfluoroundecanoic acid (PFUnA)	50.0	47.7		ng/L		95	70 - 130	1	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	50.0	47.6		ng/L		95	70 - 130	1	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	50.0	46.5		ng/L		93	70 - 130	3	30
Perfluorohexanoic acid (PFHxA)	50.0	51.1		ng/L		102	70 - 130	1	30

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-52637-1

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

Lab Sample ID: LCSD 380-45953/26-A
Matrix: Water
Analysis Batch: 46147

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 45953

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorododecanoic acid (PFDoA)	50.0	47.5		ng/L		95	70 - 130	3	30
Perfluorooctanoic acid (PFOA)	50.0	50.4		ng/L		101	70 - 130	2	30
Perfluorodecanoic acid (PFDA)	50.0	49.9		ng/L		100	70 - 130	2	30
Perfluorohexanesulfonic acid (PFHxS)	45.6	46.2		ng/L		101	70 - 130	3	30
Perfluorobutanesulfonic acid (PFBS)	44.3	44.8		ng/L		101	70 - 130	2	30
Perfluoroheptanoic acid (PFHpA)	50.0	51.3		ng/L		103	70 - 130	1	30
Perfluorononanoic acid (PFNA)	50.0	51.2		ng/L		102	70 - 130	0	30
Perfluorotetradecanoic acid (PFTA)	50.0	46.3		ng/L		93	70 - 130	4	30
Perfluorotridecanoic acid (PFTrDA)	50.0	48.1		ng/L		96	70 - 130	1	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid(9Cl-PF3ONS)	46.8	45.8		ng/L		98	70 - 130	2	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	47.3	44.5		ng/L		94	70 - 130	1	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	47.3	46.8		ng/L		99	70 - 130	2	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
d5-NEtFOSAA	100		70 - 130
13C2 PFHxA	119		70 - 130
13C2 PFDA	108		70 - 130
13C3-GenX	110		70 - 130

Lab Sample ID: MRL 380-45953/24-A
Matrix: Water
Analysis Batch: 46147

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 45953

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	2.00	1.94	J	ng/L		97	50 - 150
Perfluorooctanesulfonic acid (PFOS)	1.85	2.00	J	ng/L		108	50 - 150
Perfluoroundecanoic acid (PFUnA)	2.00	2.18	J	ng/L		109	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	2.12	J	ng/L		106	50 - 150
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	2.20	J	ng/L		110	50 - 150
Perfluorohexanoic acid (PFHxA)	2.00	2.24	J	ng/L		112	50 - 150
Perfluorododecanoic acid (PFDoA)	2.00	2.14	J	ng/L		107	50 - 150
Perfluorooctanoic acid (PFOA)	2.00	2.40	J	ng/L		120	50 - 150
Perfluorodecanoic acid (PFDA)	2.00	2.29	J	ng/L		114	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	1.83	2.00	J	ng/L		110	50 - 150
Perfluorobutanesulfonic acid (PFBS)	1.77	1.96	J	ng/L		111	50 - 150

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-52637-1

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

Lab Sample ID: MRL 380-45953/24-A
Matrix: Water
Analysis Batch: 46147

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 45953

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroheptanoic acid (PFHpA)	2.00	2.31	J	ng/L		116	50 - 150
Perfluorononanoic acid (PFNA)	2.00	2.34	J	ng/L		117	50 - 150
Perfluorotetradecanoic acid (PFTA)	2.00	2.22	J	ng/L		111	50 - 150
Perfluorotridecanoic acid (PFTrDA)	2.00	2.13	J	ng/L		107	50 - 150
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	1.87	1.93	J	ng/L		103	50 - 150
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	1.89	1.84	J	ng/L		97	50 - 150
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.89	2.23	J	ng/L		118	50 - 150
		MRL	MRL				
Surrogate		%Recovery	Qualifier				Limits
d5-NEtFOSAA		103					70 - 130
13C2 PFHxA		113					70 - 130
13C2 PFDA		111					70 - 130
13C3-GenX		107					70 - 130

Lab Sample ID: 380-52625-B-1-A MS
Matrix: Water
Analysis Batch: 46147

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 45953

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		50.1	46.7		ng/L		93	70 - 130
Perfluorooctanesulfonic acid (PFOS)	<2.0		46.4	46.8		ng/L		101	70 - 130
Perfluoroundecanoic acid (PFUnA)	<2.0		50.1	49.1		ng/L		98	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		50.1	49.0		ng/L		98	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		50.1	48.7		ng/L		97	70 - 130
Perfluorohexanoic acid (PFHxA)	<2.0		50.1	52.1		ng/L		102	70 - 130
Perfluorododecanoic acid (PFDoA)	<2.0		50.1	48.4		ng/L		97	70 - 130
Perfluorooctanoic acid (PFOA)	<2.0		50.1	51.5		ng/L		100	70 - 130
Perfluorodecanoic acid (PFDA)	<2.0		50.1	51.4		ng/L		103	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	2.3		45.7	48.7		ng/L		101	70 - 130
Perfluorobutanesulfonic acid (PFBS)	<2.0		44.3	45.8		ng/L		102	70 - 130
Perfluoroheptanoic acid (PFHpA)	<2.0		50.1	50.9		ng/L		101	70 - 130
Perfluorononanoic acid (PFNA)	<2.0		50.1	52.1		ng/L		104	70 - 130
Perfluorotetradecanoic acid (PFTA)	<2.0		50.1	48.1		ng/L		96	70 - 130
Perfluorotridecanoic acid (PFTrDA)	<2.0		50.1	49.7		ng/L		99	70 - 130

QC Sample Results

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

Job ID: 380-52637-1

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

Lab Sample ID: 380-52625-B-1-A MS
Matrix: Water
Analysis Batch: 46147

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 45953

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid(9Cl-PF3ONS)	<2.0		46.8	47.0		ng/L		100	70 - 130
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		47.3	45.8		ng/L		97	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		47.3	46.8		ng/L		99	70 - 130
Surrogate		MS %Recovery		MS Qualifier					Limits
d5-NEtFOSAA		104							70 - 130
13C2 PFHxA		114							70 - 130
13C2 PFDA		112							70 - 130
13C3-GenX		112							70 - 130

Lab Sample ID: 380-52625-C-1-A MSD
Matrix: Water
Analysis Batch: 46147

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 45953

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		50.1	48.7		ng/L		97	70 - 130	4	30
Perfluorooctanesulfonic acid (PFOS)	<2.0		46.4	46.6		ng/L		100	70 - 130	1	30
Perfluoroundecanoic acid (PFUnA)	<2.0		50.1	48.8		ng/L		97	70 - 130	1	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		50.1	47.7		ng/L		95	70 - 130	3	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		50.1	47.5		ng/L		95	70 - 130	3	30
Perfluorohexanoic acid (PFHxA)	<2.0		50.1	53.2		ng/L		104	70 - 130	2	30
Perfluorododecanoic acid (PFDoA)	<2.0		50.1	48.7		ng/L		97	70 - 130	1	30
Perfluorooctanoic acid (PFOA)	<2.0		50.1	52.3		ng/L		102	70 - 130	2	30
Perfluorodecanoic acid (PFDA)	<2.0		50.1	51.2		ng/L		102	70 - 130	0	30
Perfluorohexanesulfonic acid (PFHxS)	2.3		45.7	49.4		ng/L		103	70 - 130	1	30
Perfluorobutanesulfonic acid (PFBS)	<2.0		44.3	45.5		ng/L		101	70 - 130	1	30
Perfluoroheptanoic acid (PFHpA)	<2.0		50.1	52.5		ng/L		104	70 - 130	3	30
Perfluorononanoic acid (PFNA)	<2.0		50.1	52.0		ng/L		104	70 - 130	0	30
Perfluorotetradecanoic acid (PFTA)	<2.0		50.1	47.8		ng/L		95	70 - 130	1	30
Perfluorotridecanoic acid (PFTrDA)	<2.0		50.1	50.0		ng/L		100	70 - 130	1	30
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid(9Cl-PF3ONS)	<2.0		46.8	46.2		ng/L		99	70 - 130	2	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	<2.0		47.3	45.7		ng/L		96	70 - 130	0	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.0		47.3	48.7		ng/L		103	70 - 130	4	30

Eurofins Eaton Analytical Pomona

QC Sample Results

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

Job ID: 380-52637-1

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

<i>Surrogate</i>	<i>MSD MSD</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
<i>d5-NEtFOSAA</i>	102		70 - 130
<i>13C2 PFHxA</i>	118		70 - 130
<i>13C2 PFDA</i>	111		70 - 130
<i>13C3-GenX</i>	110		70 - 130

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QC Association Summary

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

Job ID: 380-52637-1

GC/MS Semi VOA

Prep Batch: 45783

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-52637-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	525.2	
MB 380-45783/21-A	Method Blank	Total/NA	Water	525.2	
LCS 380-45783/23-A	Lab Control Sample	Total/NA	Water	525.2	
LCSD 380-45783/24-A	Lab Control Sample Dup	Total/NA	Water	525.2	
MRL 380-45783/22-A	Lab Control Sample	Total/NA	Water	525.2	
380-52473-AJ-1-A MS	Matrix Spike	Total/NA	Water	525.2	
380-52480-AK-1-A DU	Duplicate	Total/NA	Water	525.2	

Analysis Batch: 46023

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-52637-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	525.2	45783
MB 380-45783/21-A	Method Blank	Total/NA	Water	525.2	45783
LCS 380-45783/23-A	Lab Control Sample	Total/NA	Water	525.2	45783
LCSD 380-45783/24-A	Lab Control Sample Dup	Total/NA	Water	525.2	45783
MRL 380-45783/22-A	Lab Control Sample	Total/NA	Water	525.2	45783
380-52473-AJ-1-A MS	Matrix Spike	Total/NA	Water	525.2	45783
380-52480-AK-1-A DU	Duplicate	Total/NA	Water	525.2	45783

Analysis Batch: 46143

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 380-45783/24-A	Lab Control Sample Dup	Total/NA	Water	525.2	45783

LCMS

Prep Batch: 45953

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-52637-1	MOANALUA WELLS	Total/NA	Drinking Water	537.1 DW	
380-52637-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	537.1 DW	
380-52637-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	537.1 DW	
380-52637-4	HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Drinking Water	537.1 DW	
380-52637-9	FB MOANALUA WELLS	Total/NA	Water	537.1 DW	
380-52637-10	FB AIEA GULCH WELLS PUMP 2	Total/NA	Water	537.1 DW	
380-52637-11	FB AIEA WELLS PUMPS 1&2 (260)	Total/NA	Water	537.1 DW	
380-52637-12	FB HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Water	537.1 DW	
MBL 380-45953/23-A	Method Blank	Total/NA	Water	537.1 DW	
LCS 380-45953/25-A	Lab Control Sample	Total/NA	Water	537.1 DW	
LCSD 380-45953/26-A	Lab Control Sample Dup	Total/NA	Water	537.1 DW	
MRL 380-45953/24-A	Lab Control Sample	Total/NA	Water	537.1 DW	
380-52625-B-1-A MS	Matrix Spike	Total/NA	Water	537.1 DW	
380-52625-C-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	537.1 DW	

Analysis Batch: 46147

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-52637-1	MOANALUA WELLS	Total/NA	Drinking Water	537.1	45953
380-52637-2	AIEA GULCH WELLS PUMP 2	Total/NA	Drinking Water	537.1	45953
380-52637-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	537.1	45953
380-52637-4	HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Drinking Water	537.1	45953
380-52637-9	FB MOANALUA WELLS	Total/NA	Water	537.1	45953
380-52637-10	FB AIEA GULCH WELLS PUMP 2	Total/NA	Water	537.1	45953
380-52637-11	FB AIEA WELLS PUMPS 1&2 (260)	Total/NA	Water	537.1	45953
380-52637-12	FB HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Water	537.1	45953

Eurofins Eaton Analytical Pomona

QC Association Summary

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

Job ID: 380-52637-1

LCMS (Continued)

Analysis Batch: 46147 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MBL 380-45953/23-A	Method Blank	Total/NA	Water	537.1	45953
LCS 380-45953/25-A	Lab Control Sample	Total/NA	Water	537.1	45953
LCSD 380-45953/26-A	Lab Control Sample Dup	Total/NA	Water	537.1	45953
MRL 380-45953/24-A	Lab Control Sample	Total/NA	Water	537.1	45953
380-52625-B-1-A MS	Matrix Spike	Total/NA	Water	537.1	45953
380-52625-C-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	537.1	45953

Prep Batch: 47534

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-52637-4	HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Drinking Water	533	
380-52637-11	FB AIEA WELLS PUMPS 1&2 (260)	Total/NA	Water	533	
380-52637-12	FB HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Water	533	
MBL 380-47534/19-A	Method Blank	Total/NA	Water	533	
LCS 380-47534/21-A	Lab Control Sample	Total/NA	Water	533	
MRL 380-47534/20-A	Lab Control Sample	Total/NA	Water	533	
380-52749-E-1-A LMS	Matrix Spike	Total/NA	Water	533	
380-52749-F-1-A LMSD	Matrix Spike Duplicate	Total/NA	Water	533	

Analysis Batch: 47873

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-52637-4	HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Drinking Water	533	47534
380-52637-11	FB AIEA WELLS PUMPS 1&2 (260)	Total/NA	Water	533	47534
380-52637-12	FB HALAWA WELLS UNITS 1 & 2 P1	Total/NA	Water	533	47534
MBL 380-47534/19-A	Method Blank	Total/NA	Water	533	47534
LCS 380-47534/21-A	Lab Control Sample	Total/NA	Water	533	47534
MRL 380-47534/20-A	Lab Control Sample	Total/NA	Water	533	47534
380-52749-E-1-A LMS	Matrix Spike	Total/NA	Water	533	47534
380-52749-F-1-A LMSD	Matrix Spike Duplicate	Total/NA	Water	533	47534

Prep Batch: 48080

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-52637-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	533	
MBL 380-48080/21-A	Method Blank	Total/NA	Water	533	
LCS 380-48080/23-A	Lab Control Sample	Total/NA	Water	533	
LCSD 380-48080/24-A	Lab Control Sample Dup	Total/NA	Water	533	
MRL 380-48080/22-A	Lab Control Sample	Total/NA	Water	533	
380-53105-B-1-A MS	Matrix Spike	Total/NA	Water	533	
380-53105-C-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	

Analysis Batch: 49501

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
380-52637-3	AIEA WELLS PUMPS 1&2 (260) P2	Total/NA	Drinking Water	533	48080
MBL 380-48080/21-A	Method Blank	Total/NA	Water	533	48080
LCS 380-48080/23-A	Lab Control Sample	Total/NA	Water	533	48080
LCSD 380-48080/24-A	Lab Control Sample Dup	Total/NA	Water	533	48080
MRL 380-48080/22-A	Lab Control Sample	Total/NA	Water	533	48080
380-53105-B-1-A MS	Matrix Spike	Total/NA	Water	533	48080
380-53105-C-1-A MSD	Matrix Spike Duplicate	Total/NA	Water	533	48080

Lab Chronicle

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

Job ID: 380-52637-1

Client Sample ID: MOANALUA WELLS

Lab Sample ID: 380-52637-1

Date Collected: 06/26/23 10:18

Matrix: Drinking Water

Date Received: 06/28/23 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	537.1 DW			45953	US1B	EA POM	06/30/23 07:18
Total/NA	Analysis	537.1		1	46147	UKYM	EA POM	07/04/23 18:51

Client Sample ID: AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-52637-2

Date Collected: 06/26/23 11:41

Matrix: Drinking Water

Date Received: 06/28/23 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	537.1 DW			45953	US1B	EA POM	06/30/23 07:18
Total/NA	Analysis	537.1		1	46147	UKYM	EA POM	07/04/23 19:01

Client Sample ID: AIEA WELLS PUMPS 1&2 (260) P2

Lab Sample ID: 380-52637-3

Date Collected: 06/26/23 11:14

Matrix: Drinking Water

Date Received: 06/28/23 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	525.2			45783	G9MN	EA POM	06/29/23 13:58
Total/NA	Analysis	525.2		1	46023	Q8LA	EA POM	06/30/23 22:08
Total/NA	Prep	533			48080	EE6W	EA POM	07/19/23 21:35
Total/NA	Analysis	533		1	49501	UKDT	EA POM	07/31/23 01:31
Total/NA	Prep	537.1 DW			45953	US1B	EA POM	06/30/23 07:18
Total/NA	Analysis	537.1		1	46147	UKYM	EA POM	07/04/23 19:10

Client Sample ID: HALAWA WELLS UNITS 1 & 2 P1

Lab Sample ID: 380-52637-4

Date Collected: 06/26/23 10:50

Matrix: Drinking Water

Date Received: 06/28/23 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			47534	EE6W	EA POM	07/16/23 15:45
Total/NA	Analysis	533		1	47873	Y7BM	EA POM	07/19/23 12:28
Total/NA	Prep	537.1 DW			45953	US1B	EA POM	06/30/23 07:18
Total/NA	Analysis	537.1		1	46147	UKYM	EA POM	07/04/23 19:20

Client Sample ID: FB MOANALUA WELLS

Lab Sample ID: 380-52637-9

Date Collected: 06/26/23 10:18

Matrix: Water

Date Received: 06/28/23 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Batch Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	537.1 DW			45953	US1B	EA POM	06/30/23 07:18
Total/NA	Analysis	537.1		1	46147	UKYM	EA POM	07/04/23 19:29

Lab Chronicle

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

Job ID: 380-52637-1

Client Sample ID: FB AIEA GULCH WELLS PUMP 2

Lab Sample ID: 380-52637-10

Date Collected: 06/26/23 11:41

Matrix: Water

Date Received: 06/28/23 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	537.1 DW			45953	US1B	EA POM	06/30/23 07:18
Total/NA	Analysis	537.1		1	46147	UKYM	EA POM	07/04/23 19:39

Client Sample ID: FB AIEA WELLS PUMPS 1&2 (260)

Lab Sample ID: 380-52637-11

Date Collected: 06/26/23 11:14

Matrix: Water

Date Received: 06/28/23 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			47534	EE6W	EA POM	07/16/23 15:45
Total/NA	Analysis	533		1	47873	Y7BM	EA POM	07/19/23 12:47
Total/NA	Prep	537.1 DW			45953	US1B	EA POM	06/30/23 07:18
Total/NA	Analysis	537.1		1	46147	UKYM	EA POM	07/04/23 19:49

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

Lab Sample ID: 380-52637-12

Date Collected: 06/26/23 10:50

Matrix: Water

Date Received: 06/28/23 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	533			47534	EE6W	EA POM	07/16/23 15:45
Total/NA	Analysis	533		1	47873	Y7BM	EA POM	07/19/23 12:56
Total/NA	Prep	537.1 DW			45953	US1B	EA POM	06/30/23 07:18
Total/NA	Analysis	537.1		1	46147	UKYM	EA POM	07/04/23 19:58

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: 380-52637-1

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: 380-52637-1

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: 380-52637-1

Laboratory: Eurofins Eaton Analytical Pomona (Continued)

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

Authority	Program	Identification Number	Expiration Date
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
<u>Analysis Method</u>	<u>Prep Method</u>	<u>Matrix</u>	<u>Analyte</u>
533	533	Water	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: 380-52637-1

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: 380-52637-1

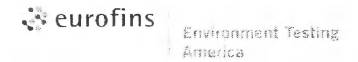
Lab Sample ID	Client Sample ID	Matrix	Collected	Received	PWSID Number
380-52637-1	MOANALUA WELLS	Drinking Water	06/26/23 10:18	06/28/23 09:40	HI0000331
380-52637-2	AIEA GULCH WELLS PUMP 2	Drinking Water	06/26/23 11:41	06/28/23 09:40	HI0000331
380-52637-3	AIEA WELLS PUMPS 1&2 (260) P2	Drinking Water	06/26/23 11:14	06/28/23 09:40	HI0000331
380-52637-4	HALAWA WELLS UNITS 1 & 2 P1	Drinking Water	06/26/23 10:50	06/28/23 09:40	HI0000331
380-52637-9	FB MOANALUA WELLS	Water	06/26/23 10:18	06/28/23 09:40	
380-52637-10	FB AIEA GULCH WELLS PUMP 2	Water	06/26/23 11:41	06/28/23 09:40	
380-52637-11	FB AIEA WELLS PUMPS 1&2 (260)	Water	06/26/23 11:14	06/28/23 09:40	
380-52637-12	FB HALAWA WELLS UNITS 1 & 2 P1	Water	06/26/23 10:50	06/28/23 09:40	

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Monrovia, CA (Suite 100)

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

Chain of Custody Record



Client Information		Sampler: BAILEY		Lab PM: Arada, Rachelle		Carrier Tracking No(s):		COC No: 380-27941-2757.2												
Client Contact: Dr. Ron Fenstermacher		Phone: 808-748-5840		E-Mail: Rachelle.Arada@et.euronisus.com		State of Origin:		Page: Page 1 of 2												
Company: City & County of Honolulu		PWSID:		Analysis Requested						Job #:										
Address: 630 South Beretania Street; Chemistry Lab		Due Date Requested:		<table border="1"> <tr> <td>Field Filtered Sample (Yes or No)</td> <td>Perform MS/MSD (Yes or No)</td> <td>SUBCONTRACT - 625 PAH Physis LL (EAL) + TICs</td> <td>SUBCONTRACT - 8015 Gas (Purgable) LL (EAL)</td> <td>SUBCONTRACT - 8915 Diesel LL (EAL) and Motor Oil</td> <td>525.2_PREC - (MOD) 525plus PLUS TICs</td> <td>SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)</td> <td>537.1_DW_PREC - 537.1 Full List</td> <td>533 - All Analytes</td> </tr> </table>						Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUBCONTRACT - 625 PAH Physis LL (EAL) + TICs	SUBCONTRACT - 8015 Gas (Purgable) LL (EAL)	SUBCONTRACT - 8915 Diesel LL (EAL) and Motor Oil	525.2_PREC - (MOD) 525plus PLUS TICs	SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)	537.1_DW_PREC - 537.1 Full List	533 - All Analytes	Preservation Codes:	
Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUBCONTRACT - 625 PAH Physis LL (EAL) + TICs	SUBCONTRACT - 8015 Gas (Purgable) LL (EAL)							SUBCONTRACT - 8915 Diesel LL (EAL) and Motor Oil	525.2_PREC - (MOD) 525plus PLUS TICs	SUBCONTRACT - 8015 Gas (Purgeable) LL (EAL)	537.1_DW_PREC - 537.1 Full List	533 - All Analytes						
City: Honolulu		TAT Requested (days):								A - HCL		M - Hexane								
State, Zip: HI, 96843		Compliance Project: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No								B - NaOH		N - None								
Phone: 808-748-5091 (tel)		PO #: C20525101 exp 05312023								C - Zn Acetate		O - AsNaO2								
Email: rfenstemacher@hbws.org		WO #:		D - Nitric Acid		P - Na2O4S														
Project Name: RED-HILL/HBWS sites Event Desc: RUSH Weekly Red Hill		Project #: 38001111		E - NaHSO4		Q - Na2SO3														
Site:		SSOW#:		F - MeOH		R - Na2S2O3														
				G - Amchlor		S - H2SO4														
				H - Ascorbic Acid		T - TSP Dodecahydrate														
				I - Ice		U - Acetone														
				J - DI Water		V - MCAA														
				K - EDTA		W - pH 4-5														
				L - EDA		Y - Trizma														
						Z - other (specify)														
						Other:														
						Total Number of containers														
						Special Instructions/Note:														

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	R	R	RA	RA	Y	N	Special Instructions/Note:
MOANALUA WELLS	26-Jun-2023	1018	G	Water			2	2	2	4			#11-7725 7598 3619
AIEA GULCH WELLS PUMP2	26-Jun-2023	1141	G	Water			2	2	2	4			(752A) 1.8" - 0.2" - 1.6" GEL-FROZEN
AIEA WELLS PUMPS 1&2 (260) P2	26-Jun-2023	1114	G	Water			2	2	2	4			#2-7725 7598 3550
HALAWA WELLS UNITS 1&2 P1	26-Jun-2023	1050	G	Water			2	2	2	4			(752A) 3.3" - 0.2" - 3.1" GEL-FROZEN
													#3-7725 7598 4615
													(752A) 1.6" - 0.2" - 1.4" GEL-FROZEN
TB MOANALUA WELLS	26-Jun-2023	1018		Water						2			#4-7725 7598 4648
TB AIEA GULCH WELLS PUMP2	26-Jun-2023	1141		Water						2			(752A) 7.7" - 0.2" - 7.5" GEL-FROZEN
TB AIEA WELLS PUMPS 1&2 (260)	26-Jun-2023	1114		Water						2			
TB HALAWA WELLS UNITS 1&2	26-Jun-2023	1050		Water						2			



380-52637 COC

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

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

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

Special Instructions/QC Requirements:

Empty Kit Relinquished by: **BAILEY** Date: **27 JUN 2023 1400** Time: **1400** Method of Shipment: **FED EX 4 COOLERS T**

Relinquished by: BAILEY	Date/Time: 27 JUN 2023 1400	Company: HBWS	Received by: G. RETNER	Date/Time: 06/28/2023 09:40	Company: FEAP
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:

Custody Seals Intact: Yes No

Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: **(752A) -0.2" GEL-FROZEN ↑**

Login Sample Receipt Checklist

Client: City & County of Honolulu

Job Number: 380-52637-1

Login Number: 52637
List Number: 1
Creator: Elyas, Matthew

List Source: Eurofins Eaton Analytical Pomona

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	False	1/4 cooler's temperature outside required temperature criteria.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	False	Two 8015 vials from one site were received broken. Refer to NCM for details.
Sample collection date/times are provided.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Samples do not require splitting or compositing.	True	
Container provided by EEA	True	

