



ANALYTICAL REPORT

PREPARED FOR

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JOB DESCRIPTION

Wastewater Treatment

JOB NUMBER

320-105614-1

Eurofins Sacramento

Job Notes

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The test results in this report relate only to the samples as received by the laboratory and will 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 Environment Testing Northern California, LLC Project Manager.

Authorization



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Definitions/Glossary

Client: Hawaii Department of Health
Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
*5+	Isotope dilution analyte is outside acceptance limits, high biased.
H	Sample was prepped or analyzed beyond the specified holding time. This does not meet regulatory requirements.
H3	Sample was received and analyzed past holding time. This does not meet regulatory requirements.

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
CFI	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: Hawaii Department of Health
Project/Site: Wastewater Treatment

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Laboratory: Eurofins Sacramento

Narrative

Receipt

The samples were received on 10/4/2023 9:30 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.6° C.

Receipt Exceptions

The following sample were received outside of the laboratories recommended holding time for TOPS analysis: SIWWTP-EFFL (320-105614-2) and HNWWTP-EFFL (320-105614-3).

As requested, the NTA analysis was placed on hold.

The container label for the following samples did not match the information listed on the Chain-of-Custody (COC): LAWWTWP-EFFL (320-105614-1), SIWWTP-EFFL (320-105614-2) and HNWWTP-EFFL (320-105614-3).

The containers for sample LAWWTWP-EFFL (320-105614-1) were labeled with collection dates of 9/25/23 & 9/26/23. The containers for sample SIWWTP-EFFL (320-105614-2) were labeled with collection dates of 9/14/23 & 9/15/23. The containers for sample HNWWTP-EFFL (320-105614-3) were labeled with collection dates of 9/18/23 & 9/19/23. The collection dates listed on the COC were used in the report.

No collection times were listed on the COC. The earliest collection time listed on the containers was used in the report.

LCMS

Method 537 (modified): One Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for the following sample: SIWWTP-EFFL (320-105614-2). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Method 537 (modified): The laboratory control sample (LCS) for preparation batch 320-713360 and analytical batch 320-713699 recovered outside control limits for the following analyte: 3-Perfluoropentylpropanoic acid (5:3 FTCA). This analyte was biased high in the LCS and was not detected in the associated samples; therefore, the data have been reported.

Method 537 (modified): The labeled analyte M2-4:2FTS is employed in this analysis as a "Reverse Surrogate". It is used to monitor the oxidation efficiency of the TOP assay. This analyte is fortified into all sample fractions prior to any processing. The recovery of this analyte should be 0% in Post-Treatment fractions, indicating complete oxidation of the sample. LAWWTWP-EFFL (320-105614-1), SIWWTP-EFFL (320-105614-2), HNWWTP-EFFL (320-105614-3), (LCS 320-712832/2-A), (LCSD 320-712832/3-A), & MB 320-712832/1-A).

Method 537 (modified): The continuing calibration verification (CCV) associated with batch 320-713700 recovered above the upper control limit for Perfluoro-3,6-dioxaheptanoic acid. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method 537 (modified): Zero percent recovery of precursor analytes (such as 4:2 FTS, 6:2 FTS, 8:2 FTS, FOSA, NMeFOSAA, NEtFOSAA, etc.) and enhanced recoveries of PFCA is observed in the Post-Treatment Laboratory Control Sample (LCS) and Post-Treatment Laboratory Control Sample Duplicate (LCSD) associated with these samples, consistent with the expected oxidation of precursor analytes. The existing LCS control limits are based upon our historical performance for a set of 24-36 analytes in the LCS solution. We have recently expanded to 70+ analytes. As the LCS solution now contains new/additional precursor analytes we are seeing enhanced recoveries for some PFCA vs. the historical limits as a result. The LCS results are flagged as being high and outside of the established limits for some analytes; however, this is a function of the new analytes in the LCS solution and not indicative of an "out of control" process. (LCS 320-712832/2-A), (LCSD 320-712832/3-A).

Method 537 (modified): The laboratory control sample (LCS) for preparation batch 320-713360 and analytical batch 320-713699 recovered outside control limits for the following analytes: 3-Perfluoropentylpropanoic acid (5:3 FTCA). This analyte was biased high in the LCS and was not detected in the associated samples; therefore, the data have been reported.

Method 537 (modified): The following analyte recovered outside control limits for the LCS associated with preparation batch 320-713360 and analytical batch 320-713699: 3-Perfluoropentylpropanoic acid (5:3 FTCA). This is not indicative of a systematic control problem

Case Narrative

Client: Hawaii Department of Health
Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Job ID: 320-105614-1 (Continued)

Laboratory: Eurofins Sacramento (Continued)

because these were random marginal exceedances. Qualified results have been reported.

Method ELLE SOP: Reporting limits were raised for the following samples due to interference from the sample matrix. LAWWTP-EFFL (320-105614-1), SIWWTP-EFFL (320-105614-2) and HNWWTP-EFFL (320-105614-3). As requested these samples were filtered prior to extraction.

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

Organic Prep

Method TOP Post Prep: The following sample was extracted outside of the laboratory's recommended holding time due to the limited amount of time left when the sample was received: LAWWTP-EFFL (320-105614-1).

Method TOP Post Prep: As requested, the following samples were filtered prior to extraction: LAWWTP-EFFL (320-105614-1), SIWWTP-EFFL (320-105614-2) and HNWWTP-EFFL (320-105614-3).

Method TOP Pre - Prep: As requested, the following samples were filtered prior to extraction: LAWWTP-EFFL (320-105614-1), SIWWTP-EFFL (320-105614-2) and HNWWTP-EFFL (320-105614-3).

Method TOP Pre - Prep: The following sample was extracted outside of the laboratory's recommended holding time due to the limited amount of time left when the sample was received: LAWWTP-EFFL (320-105614-1).

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



Detection Summary

Client: Hawaii Department of Health
Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Client Sample ID: LAWWTP-EFFL

Lab Sample ID: 320-105614-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	14	H	13		ng/L	1		537 (modified)	Pre-Treatment
Perfluoropentanoic acid (PFPeA)	520	H	5.0		ng/L	1		537 (modified)	Pre-Treatment
Perfluorohexanoic acid (PFHxA)	280	H	5.0		ng/L	1		537 (modified)	Pre-Treatment
Perfluorobutanesulfonic acid (PFBS)	20	H	5.0		ng/L	1		537 (modified)	Pre-Treatment
Perfluorobutanoic acid (PFBA)	45	H **	13		ng/L	1		537 (modified)	Post-Treatment
Perfluoropentanoic acid (PFPeA)	420	H **	5.0		ng/L	1		537 (modified)	Post-Treatment
Perfluorohexanoic acid (PFHxA)	210	H **	5.0		ng/L	1		537 (modified)	Post-Treatment
Perfluorobutanesulfonic acid (PFBS)	23	H	5.0		ng/L	1		537 (modified)	Post-Treatment
PFBA	31				ng/L	1		Total PFCA-Dif	Total/NA
PFPA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
PFHxA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
PFHpA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
PFOA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
PFNA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	810				ng/L	1		Total PFCA-Sum	Pre-Treatment
Total PFCA	680				ng/L	1		Total PFCA-Sum	Post-Treatment

Client Sample ID: SIWWTP-EFFL

Lab Sample ID: 320-105614-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoropentanoic acid (PFPeA)	9.7	H H3	5.0		ng/L	1		537 (modified)	Pre-Treatment
Perfluorohexanoic acid (PFHxA)	7.6	H H3	5.0		ng/L	1		537 (modified)	Pre-Treatment
Perfluorohexanesulfonic acid (PFHxS)	8.8	H H3	5.0		ng/L	1		537 (modified)	Pre-Treatment
Perfluorooctanesulfonic acid (PFOS)	11	H H3	5.0		ng/L	1		537 (modified)	Pre-Treatment
Perfluoropentanoic acid (PFPeA)	7.8	H H3 **	5.0		ng/L	1		537 (modified)	Post-Treatment
Perfluorohexanoic acid (PFHxA)	7.0	H H3 **	5.0		ng/L	1		537 (modified)	Post-Treatment
Perfluorohexanesulfonic acid (PFHxS)	6.8	H H3	5.0		ng/L	1		537 (modified)	Post-Treatment
Perfluorooctanesulfonic acid (PFOS)	8.8	H H3	5.0		ng/L	1		537 (modified)	Post-Treatment
PFBA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
PFPA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
PFHxA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
PFHpA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
PFOA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
PFNA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	17				ng/L	1		Total PFCA-Sum	Pre-Treatment

This Detection Summary does not include radiochemical test results.

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Detection Summary

Client: Hawaii Department of Health
 Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Client Sample ID: SIWWTP-EFFL (Continued)

Lab Sample ID: 320-105614-2

Analyte	Result	Qualifier	NONE	NONE	Unit	Dil Fac	D	Method	Prep Type
Total PFCA	15				ng/L	1		Total PFCA-Sum	Post-Treatment

Client Sample ID: HNWWTP-EFFL

Lab Sample ID: 320-105614-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoropentanoic acid (PFPeA)	8.0	H H3	5.0		ng/L	1		537 (modified)	Pre-Treatment
Perfluorohexanoic acid (PFHxA)	7.5	H H3	5.0		ng/L	1		537 (modified)	Pre-Treatment
3-Perfluoropentylpropanoic acid (5:3 FTCA)	8.6	H H3 **	5.0		ng/L	1		537 (modified)	Pre-Treatment
Perfluoropentanoic acid (PFPeA)	9.2	H H3 **	5.0		ng/L	1		537 (modified)	Post-Treatment
Perfluorohexanoic acid (PFHxA)	5.8	H H3 **	5.0		ng/L	1		537 (modified)	Post-Treatment
3-Perfluoropentylpropanoic acid (5:3 FTCA)	7.0	H H3	5.0		ng/L	1		537 (modified)	Post-Treatment
PFBA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
PFPA	1.1				ng/L	1		Total PFCA-Dif	Total/NA
PFHxA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
PFHpA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
PFOA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
PFNA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	0.00				ng/L	1		Total PFCA-Dif	Total/NA
Total PFCA	16				ng/L	1		Total PFCA-Sum	Pre-Treatment
Total PFCA	15				ng/L	1		Total PFCA-Sum	Post-Treatment

This Detection Summary does not include radiochemical test results.

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Client Sample Results

Client: Hawaii Department of Health
Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Client Sample ID: LAWWTP-EFFL

Lab Sample ID: 320-105614-1

Date Collected: 09/26/23 09:00

Matrix: Water

Date Received: 10/04/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	14	H	13		ng/L		10/15/23 19:30	10/17/23 16:09	1
Perfluoropentanoic acid (PFPeA)	520	H	5.0		ng/L		10/15/23 19:30	10/17/23 16:09	1
Perfluorohexanoic acid (PFHxA)	280	H	5.0		ng/L		10/15/23 19:30	10/17/23 16:09	1
Perfluoroheptanoic acid (PFHpA)	ND	H	5.0		ng/L		10/15/23 19:30	10/17/23 16:09	1
Perfluorooctanoic acid (PFOA)	ND	H	5.0		ng/L		10/15/23 19:30	10/17/23 16:09	1
Perfluorononanoic acid (PFNA)	ND	H	5.0		ng/L		10/15/23 19:30	10/17/23 16:09	1
Perfluorodecanoic acid (PFDA)	ND	H	5.0		ng/L		10/15/23 19:30	10/17/23 16:09	1
Perfluoroundecanoic acid (PFUnA)	ND	H	5.0		ng/L		10/15/23 19:30	10/17/23 16:09	1
Perfluorododecanoic acid (PFDoA)	ND	H	5.0		ng/L		10/15/23 19:30	10/17/23 16:09	1
Perfluorotridecanoic acid (PFTrDA)	ND	H	5.0		ng/L		10/15/23 19:30	10/17/23 16:09	1
Perfluorotetradecanoic acid (PFTeA)	ND	H	5.0		ng/L		10/15/23 19:30	10/17/23 16:09	1
Perfluorobutanesulfonic acid (PFBS)	20	H	5.0		ng/L		10/15/23 19:30	10/17/23 16:09	1
Perfluoropentanesulfonic acid (PFPeS)	ND	H	5.0		ng/L		10/15/23 19:30	10/17/23 16:09	1
Perfluorohexanesulfonic acid (PFHxS)	ND	H	5.0		ng/L		10/15/23 19:30	10/17/23 16:09	1
Perfluoroheptanesulfonic acid (PFHpS)	ND	H	5.0		ng/L		10/15/23 19:30	10/17/23 16:09	1
Perfluorooctanesulfonic acid (PFOS)	ND	H	5.0		ng/L		10/15/23 19:30	10/17/23 16:09	1
Perfluorononanesulfonic acid (PFNS)	ND	H	5.0		ng/L		10/15/23 19:30	10/17/23 16:09	1
Perfluorodecanesulfonic acid (PFDS)	ND	H	5.0		ng/L		10/15/23 19:30	10/17/23 16:09	1
Perfluorododecanesulfonic acid (PFDoS)	ND	H	5.0		ng/L		10/15/23 19:30	10/17/23 16:09	1
Perfluorooctanesulfonamide (FOSA)	ND	H	5.0		ng/L		10/15/23 19:30	10/17/23 16:09	1
N-Methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	H	13		ng/L		10/15/23 19:30	10/17/23 16:09	1
N-Ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	H	13		ng/L		10/15/23 19:30	10/17/23 16:09	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	H	5.0		ng/L		10/15/23 19:30	10/17/23 16:09	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	H	13		ng/L		10/15/23 19:30	10/17/23 16:09	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	H	5.0		ng/L		10/15/23 19:30	10/17/23 16:09	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND	H	5.0		ng/L		10/15/23 19:30	10/17/23 16:09	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND	H	5.0		ng/L		10/15/23 19:30	10/17/23 16:09	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND	H	10		ng/L		10/15/23 19:30	10/17/23 16:09	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND	H	5.0		ng/L		10/15/23 19:30	10/17/23 16:09	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid (9Cl-PF3ONS)	ND	H	5.0		ng/L		10/15/23 19:30	10/17/23 16:09	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND	H	10		ng/L		10/15/23 19:30	10/17/23 16:09	1
11-Chloroeicosafuoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	ND	H	5.0		ng/L		10/15/23 19:30	10/17/23 16:09	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	H	5.0		ng/L		10/15/23 19:30	10/17/23 16:09	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND	H **	5.0		ng/L		10/15/23 19:30	10/17/23 16:09	1

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Client Sample Results

Client: Hawaii Department of Health
Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Client Sample ID: LAWWTP-EFFL

Lab Sample ID: 320-105614-1

Date Collected: 09/26/23 09:00

Matrix: Water

Date Received: 10/04/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND	H	5.0		ng/L		10/15/23 19:30	10/17/23 16:09	1
6:2 FTUCA	ND	H	5.0		ng/L		10/15/23 19:30	10/17/23 16:09	1
Nonafluoro-3,6-dioxiheptanoic acid (NFDHA)	ND	H	5.0		ng/L		10/15/23 19:30	10/17/23 16:09	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	H	5.0		ng/L		10/15/23 19:30	10/17/23 16:09	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	H	5.0		ng/L		10/15/23 19:30	10/17/23 16:09	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	ND	H	5.0		ng/L		10/15/23 19:30	10/17/23 16:09	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	95		25 - 150	10/15/23 19:30	10/17/23 16:09	1
13C4 PFBA	91		25 - 150	10/15/23 19:30	10/17/23 16:09	1
13C5 PFPeA	96		25 - 150	10/15/23 19:30	10/17/23 16:09	1
13C2 PFHxA	93		25 - 150	10/15/23 19:30	10/17/23 16:09	1
13C4 PFHpA	91		25 - 150	10/15/23 19:30	10/17/23 16:09	1
13C4 PFOA	93		25 - 150	10/15/23 19:30	10/17/23 16:09	1
13C5 PFNA	89		25 - 150	10/15/23 19:30	10/17/23 16:09	1
13C2 PFDA	95		25 - 150	10/15/23 19:30	10/17/23 16:09	1
13C2 PFUnA	99		25 - 150	10/15/23 19:30	10/17/23 16:09	1
13C2 PFDoA	96		25 - 150	10/15/23 19:30	10/17/23 16:09	1
13C2 PFTeDA	111		25 - 150	10/15/23 19:30	10/17/23 16:09	1
13C2 PFHxDA	71		25 - 150	10/15/23 19:30	10/17/23 16:09	1
13C3 PFBS	92		25 - 150	10/15/23 19:30	10/17/23 16:09	1
18O2 PFHxS	96		25 - 150	10/15/23 19:30	10/17/23 16:09	1
13C4 PFOS	84		25 - 150	10/15/23 19:30	10/17/23 16:09	1
d5-NEtFOSAA	105		25 - 150	10/15/23 19:30	10/17/23 16:09	1
d3-NMeFOSAA	100		25 - 150	10/15/23 19:30	10/17/23 16:09	1
M2-4:2 FTS	106		25 - 150	10/15/23 19:30	10/17/23 16:09	1
M2-6:2 FTS	119		25 - 150	10/15/23 19:30	10/17/23 16:09	1
M2-8:2 FTS	107		25 - 150	10/15/23 19:30	10/17/23 16:09	1
d-N-MeFOSA-M	74		25 - 150	10/15/23 19:30	10/17/23 16:09	1
d-N-EtFOSA-M	70		25 - 150	10/15/23 19:30	10/17/23 16:09	1
d7-N-MeFOSE-M	77		25 - 150	10/15/23 19:30	10/17/23 16:09	1
d9-N-EtFOSE-M	65		25 - 150	10/15/23 19:30	10/17/23 16:09	1
13C3 HFPO-DA	88		25 - 150	10/15/23 19:30	10/17/23 16:09	1
13C-6:2 FTCA	75		25 - 150	10/15/23 19:30	10/17/23 16:09	1
13C-8:2 FTCA	83		25 - 150	10/15/23 19:30	10/17/23 16:09	1
13C2 10:2 FTS	123		25 - 150	10/15/23 19:30	10/17/23 16:09	1
13C-6:2 FTUCA	127		25 - 150	10/15/23 19:30	10/17/23 16:09	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND	H	5.0		ng/L		10/15/23 19:30	10/23/23 20:57	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	85		25 - 150	10/15/23 19:30	10/23/23 20:57	1

Eurofins Sacramento

Client Sample Results

Client: Hawaii Department of Health
Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Client Sample ID: LAWWTP-EFFL

Lab Sample ID: 320-105614-1

Date Collected: 09/26/23 09:00

Matrix: Water

Date Received: 10/04/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	45	H **	13		ng/L		10/12/23 17:37	10/17/23 18:12	1
Perfluoropentanoic acid (PFPeA)	420	H **	5.0		ng/L		10/12/23 17:37	10/17/23 18:12	1
Perfluorohexanoic acid (PFHxA)	210	H **	5.0		ng/L		10/12/23 17:37	10/17/23 18:12	1
Perfluoroheptanoic acid (PFHpA)	ND	H **	5.0		ng/L		10/12/23 17:37	10/17/23 18:12	1
Perfluorooctanoic acid (PFOA)	ND	H	5.0		ng/L		10/12/23 17:37	10/17/23 18:12	1
Perfluorononanoic acid (PFNA)	ND	H **	5.0		ng/L		10/12/23 17:37	10/17/23 18:12	1
Perfluorodecanoic acid (PFDA)	ND	H **	5.0		ng/L		10/12/23 17:37	10/17/23 18:12	1
Perfluoroundecanoic acid (PFUnA)	ND	H	5.0		ng/L		10/12/23 17:37	10/17/23 18:12	1
Perfluorododecanoic acid (PFDoA)	ND	H	5.0		ng/L		10/12/23 17:37	10/17/23 18:12	1
Perfluorotridecanoic acid (PFTrDA)	ND	H	5.0		ng/L		10/12/23 17:37	10/17/23 18:12	1
Perfluorotetradecanoic acid (PFTeA)	ND	H	5.0		ng/L		10/12/23 17:37	10/17/23 18:12	1
Perfluorobutanesulfonic acid (PFBS)	23	H	5.0		ng/L		10/12/23 17:37	10/17/23 18:12	1
Perfluoropentanesulfonic acid (PFPeS)	ND	H	5.0		ng/L		10/12/23 17:37	10/17/23 18:12	1
Perfluorohexanesulfonic acid (PFHxS)	ND	H	5.0		ng/L		10/12/23 17:37	10/17/23 18:12	1
Perfluoroheptanesulfonic acid (PFHpS)	ND	H	5.0		ng/L		10/12/23 17:37	10/17/23 18:12	1
Perfluorooctanesulfonic acid (PFOS)	ND	H	5.0		ng/L		10/12/23 17:37	10/17/23 18:12	1
Perfluorononanesulfonic acid (PFNS)	ND	H	5.0		ng/L		10/12/23 17:37	10/17/23 18:12	1
Perfluorodecanesulfonic acid (PFDS)	ND	H	5.0		ng/L		10/12/23 17:37	10/17/23 18:12	1
Perfluorododecanesulfonic acid (PFDoS)	ND	H	5.0		ng/L		10/12/23 17:37	10/17/23 18:12	1
Perfluorooctanesulfonamide (FOSA)	ND	H	5.0		ng/L		10/12/23 17:37	10/17/23 18:12	1
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	H	13		ng/L		10/12/23 17:37	10/17/23 18:12	1
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	H	13		ng/L		10/12/23 17:37	10/17/23 18:12	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	H	5.0		ng/L		10/12/23 17:37	10/17/23 18:12	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	H	13		ng/L		10/12/23 17:37	10/17/23 18:12	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	H	5.0		ng/L		10/12/23 17:37	10/17/23 18:12	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND	H	5.0		ng/L		10/12/23 17:37	10/17/23 18:12	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND	H	5.0		ng/L		10/12/23 17:37	10/17/23 18:12	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND	H	10		ng/L		10/12/23 17:37	10/17/23 18:12	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND	H	5.0		ng/L		10/12/23 17:37	10/17/23 18:12	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid (9Cl-PF3ONS)	ND	H	5.0		ng/L		10/12/23 17:37	10/17/23 18:12	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND	H	10		ng/L		10/12/23 17:37	10/17/23 18:12	1
11-Chloroeicosafuoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	ND	H	5.0		ng/L		10/12/23 17:37	10/17/23 18:12	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	H	5.0		ng/L		10/12/23 17:37	10/17/23 18:12	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND	H	5.0		ng/L		10/12/23 17:37	10/17/23 18:12	1

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Client Sample Results

Client: Hawaii Department of Health
Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Client Sample ID: LAWWTP-EFFL

Lab Sample ID: 320-105614-1

Date Collected: 09/26/23 09:00

Matrix: Water

Date Received: 10/04/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND	H	5.0		ng/L		10/12/23 17:37	10/17/23 18:12	1
6:2 FTUCA	ND	H	5.0		ng/L		10/12/23 17:37	10/17/23 18:12	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	H	5.0		ng/L		10/12/23 17:37	10/17/23 18:12	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	H	5.0		ng/L		10/12/23 17:37	10/17/23 18:12	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	H	5.0		ng/L		10/12/23 17:37	10/17/23 18:12	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	ND	H	5.0		ng/L		10/12/23 17:37	10/17/23 18:12	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	86		25 - 150	10/12/23 17:37	10/17/23 18:12	1
13C4 PFBA	93		25 - 150	10/12/23 17:37	10/17/23 18:12	1
13C5 PFPeA	99		25 - 150	10/12/23 17:37	10/17/23 18:12	1
13C2 PFHxA	98		25 - 150	10/12/23 17:37	10/17/23 18:12	1
13C4 PFHpA	100		25 - 150	10/12/23 17:37	10/17/23 18:12	1
13C4 PFOA	96		25 - 150	10/12/23 17:37	10/17/23 18:12	1
13C5 PFNA	90		25 - 150	10/12/23 17:37	10/17/23 18:12	1
13C2 PFDA	87		25 - 150	10/12/23 17:37	10/17/23 18:12	1
13C2 PFUnA	95		25 - 150	10/12/23 17:37	10/17/23 18:12	1
13C2 PFDoA	94		25 - 150	10/12/23 17:37	10/17/23 18:12	1
13C2 PFTeDA	112		25 - 150	10/12/23 17:37	10/17/23 18:12	1
13C2 PFHxDA	88		25 - 150	10/12/23 17:37	10/17/23 18:12	1
13C3 PFBS	95		25 - 150	10/12/23 17:37	10/17/23 18:12	1
18O2 PFHxS	98		25 - 150	10/12/23 17:37	10/17/23 18:12	1
13C4 PFOS	82		25 - 150	10/12/23 17:37	10/17/23 18:12	1
d5-NEtFOSAA	113		25 - 150	10/12/23 17:37	10/17/23 18:12	1
d3-NMeFOSAA	99		25 - 150	10/12/23 17:37	10/17/23 18:12	1
M2-4:2 FTS	0		0 - 10	10/12/23 17:37	10/17/23 18:12	1
M2-6:2 FTS	106		25 - 150	10/12/23 17:37	10/17/23 18:12	1
M2-8:2 FTS	102		25 - 150	10/12/23 17:37	10/17/23 18:12	1
d-N-MeFOSA-M	61		25 - 150	10/12/23 17:37	10/17/23 18:12	1
d-N-EtFOSA-M	71		25 - 150	10/12/23 17:37	10/17/23 18:12	1
d7-N-MeFOSE-M	74		25 - 150	10/12/23 17:37	10/17/23 18:12	1
d9-N-EtFOSE-M	59		25 - 150	10/12/23 17:37	10/17/23 18:12	1
13C3 HFPO-DA	99		25 - 150	10/12/23 17:37	10/17/23 18:12	1
13C-6:2 FTCA	85		25 - 150	10/12/23 17:37	10/17/23 18:12	1
13C-8:2 FTCA	89		25 - 150	10/12/23 17:37	10/17/23 18:12	1
13C2 10:2 FTS	103		25 - 150	10/12/23 17:37	10/17/23 18:12	1
13C-6:2 FTUCA	132		25 - 150	10/12/23 17:37	10/17/23 18:12	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND	H	5.0		ng/L		10/12/23 17:37	10/23/23 19:17	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
13C3 PFBS	84		25 - 150	10/12/23 17:37	10/23/23 19:17	1			

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Client Sample Results

Client: Hawaii Department of Health
Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Client Sample ID: LAWWTP-EFFL

Lab Sample ID: 320-105614-1

Date Collected: 09/26/23 09:00

Matrix: Water

Date Received: 10/04/23 09:30

Method: ELLE - Lancaster ELLE SOP - Total or Organic Fluorine by Combustion Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Adsorbable Organic Fluorine (AOF)	ND		40		ug/L		11/06/23 10:01	11/07/23 16:55	1

Method: TAL SOP Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
PFBA	31				ng/L			11/01/23 15:42	1
PFPA	0.00				ng/L			11/01/23 15:42	1
PFHxA	0.00				ng/L			11/01/23 15:42	1
PFHpA	0.00				ng/L			11/01/23 15:42	1
PFOA	0.00				ng/L			11/01/23 15:42	1
PFNA	0.00				ng/L			11/01/23 15:42	1
Total PFCA	0.00				ng/L			11/01/23 15:42	1

Method: TAL SOP Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	810				ng/L			10/17/23 16:09	1

Method: TAL SOP Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	680				ng/L			10/17/23 18:12	1

Client Sample ID: SIWWTP-EFFL

Lab Sample ID: 320-105614-2

Date Collected: 09/19/23 08:31

Matrix: Water

Date Received: 10/04/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND	H H3	13		ng/L		10/15/23 19:30	10/17/23 16:21	1
Perfluoropentanoic acid (PFPeA)	9.7	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:21	1
Perfluorohexanoic acid (PFHxA)	7.6	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:21	1
Perfluoroheptanoic acid (PFHpA)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:21	1
Perfluorooctanoic acid (PFOA)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:21	1
Perfluorononanoic acid (PFNA)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:21	1
Perfluorodecanoic acid (PFDA)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:21	1
Perfluoroundecanoic acid (PFUnA)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:21	1
Perfluorododecanoic acid (PFDoA)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:21	1
Perfluorotridecanoic acid (PFTTrDA)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:21	1
Perfluorotetradecanoic acid (PFTTeA)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:21	1
Perfluorobutanesulfonic acid (PFBS)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:21	1
Perfluoropentanesulfonic acid (PFPeS)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:21	1
Perfluorohexanesulfonic acid (PFHxS)	8.8	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:21	1
Perfluoroheptanesulfonic acid (PFHpS)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:21	1
Perfluorooctanesulfonic acid (PFOS)	11	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:21	1
Perfluorononanesulfonic acid (PFNS)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:21	1
Perfluorodecanesulfonic acid (PFDS)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:21	1
Perfluorododecanesulfonic acid (PFDoS)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:21	1
Perfluorooctanesulfonamide (FOSA)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:21	1

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Client Sample Results

Client: Hawaii Department of Health
Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Client Sample ID: SIWWTP-EFFL

Lab Sample ID: 320-105614-2

Date Collected: 09/19/23 08:31

Matrix: Water

Date Received: 10/04/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	H H3	13		ng/L		10/15/23 19:30	10/17/23 16:21	1
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	H H3	13		ng/L		10/15/23 19:30	10/17/23 16:21	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:21	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	H H3	13		ng/L		10/15/23 19:30	10/17/23 16:21	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:21	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:21	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:21	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND	H H3	10		ng/L		10/15/23 19:30	10/17/23 16:21	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:21	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid (9Cl-PF3ONS)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:21	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND	H H3	10		ng/L		10/15/23 19:30	10/17/23 16:21	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:21	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:21	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND	H H3 **	5.0		ng/L		10/15/23 19:30	10/17/23 16:21	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:21	1
6:2 FTUCA	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:21	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:21	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:21	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:21	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:21	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C8 FOSA	81		25 - 150				10/15/23 19:30	10/17/23 16:21	1
13C4 PFBA	87		25 - 150				10/15/23 19:30	10/17/23 16:21	1
13C5 PFPeA	101		25 - 150				10/15/23 19:30	10/17/23 16:21	1
13C2 PFHxA	98		25 - 150				10/15/23 19:30	10/17/23 16:21	1
13C4 PFHpA	94		25 - 150				10/15/23 19:30	10/17/23 16:21	1
13C4 PFOA	96		25 - 150				10/15/23 19:30	10/17/23 16:21	1
13C5 PFNA	94		25 - 150				10/15/23 19:30	10/17/23 16:21	1
13C2 PFDA	90		25 - 150				10/15/23 19:30	10/17/23 16:21	1
13C2 PFUnA	78		25 - 150				10/15/23 19:30	10/17/23 16:21	1
13C2 PFDoA	84		25 - 150				10/15/23 19:30	10/17/23 16:21	1
13C2 PFTeDA	85		25 - 150				10/15/23 19:30	10/17/23 16:21	1
13C2 PFHxDA	77		25 - 150				10/15/23 19:30	10/17/23 16:21	1

Eurofins Sacramento

Client Sample Results

Client: Hawaii Department of Health
Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Client Sample ID: SIWWTP-EFFL

Lab Sample ID: 320-105614-2

Date Collected: 09/19/23 08:31

Matrix: Water

Date Received: 10/04/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	94		25 - 150	10/15/23 19:30	10/17/23 16:21	1
18O2 PFHxS	94		25 - 150	10/15/23 19:30	10/17/23 16:21	1
13C4 PFOS	86		25 - 150	10/15/23 19:30	10/17/23 16:21	1
d5-NEtFOSAA	71		25 - 150	10/15/23 19:30	10/17/23 16:21	1
d3-NMeFOSAA	78		25 - 150	10/15/23 19:30	10/17/23 16:21	1
M2-4:2 FTS	131		25 - 150	10/15/23 19:30	10/17/23 16:21	1
M2-6:2 FTS	166	*5+	25 - 150	10/15/23 19:30	10/17/23 16:21	1
M2-8:2 FTS	120		25 - 150	10/15/23 19:30	10/17/23 16:21	1
d-N-MeFOSA-M	50		25 - 150	10/15/23 19:30	10/17/23 16:21	1
d-N-EtFOSA-M	65		25 - 150	10/15/23 19:30	10/17/23 16:21	1
d7-N-MeFOSE-M	74		25 - 150	10/15/23 19:30	10/17/23 16:21	1
d9-N-EtFOSE-M	74		25 - 150	10/15/23 19:30	10/17/23 16:21	1
13C3 HFPO-DA	90		25 - 150	10/15/23 19:30	10/17/23 16:21	1
13C-6:2 FTCA	79		25 - 150	10/15/23 19:30	10/17/23 16:21	1
13C-8:2 FTCA	67		25 - 150	10/15/23 19:30	10/17/23 16:21	1
13C2 10:2 FTS	74		25 - 150	10/15/23 19:30	10/17/23 16:21	1
13C-6:2 FTUCA	122		25 - 150	10/15/23 19:30	10/17/23 16:21	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/23/23 21:08	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	79		25 - 150	10/15/23 19:30	10/23/23 21:08	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND	H H3 **	13		ng/L		10/12/23 17:37	10/17/23 18:23	1
Perfluoropentanoic acid (PFPeA)	7.8	H H3 **	5.0		ng/L		10/12/23 17:37	10/17/23 18:23	1
Perfluorohexanoic acid (PFHxA)	7.0	H H3 **	5.0		ng/L		10/12/23 17:37	10/17/23 18:23	1
Perfluoroheptanoic acid (PFHpA)	ND	H H3 **	5.0		ng/L		10/12/23 17:37	10/17/23 18:23	1
Perfluorooctanoic acid (PFOA)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:23	1
Perfluorononanoic acid (PFNA)	ND	H H3 **	5.0		ng/L		10/12/23 17:37	10/17/23 18:23	1
Perfluorodecanoic acid (PFDA)	ND	H H3 **	5.0		ng/L		10/12/23 17:37	10/17/23 18:23	1
Perfluoroundecanoic acid (PFUnA)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:23	1
Perfluorododecanoic acid (PFDoA)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:23	1
Perfluorotridecanoic acid (PFTrDA)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:23	1
Perfluorotetradecanoic acid (PFTeA)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:23	1
Perfluorobutanesulfonic acid (PFBS)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:23	1
Perfluoropentanesulfonic acid (PFPeS)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:23	1
Perfluorohexanesulfonic acid (PFHxS)	6.8	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:23	1
Perfluoroheptanesulfonic acid (PFHpS)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:23	1
Perfluorooctanesulfonic acid (PFOS)	8.8	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:23	1
Perfluorononanesulfonic acid (PFNS)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:23	1
Perfluorodecanesulfonic acid (PFDS)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:23	1
Perfluorododecanesulfonic acid (PFDoS)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:23	1

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Client Sample Results

Client: Hawaii Department of Health
Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Client Sample ID: SIWWTP-EFFL

Lab Sample ID: 320-105614-2

Date Collected: 09/19/23 08:31

Matrix: Water

Date Received: 10/04/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonamide (FOSA)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:23	1
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	H H3	13		ng/L		10/12/23 17:37	10/17/23 18:23	1
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	H H3	13		ng/L		10/12/23 17:37	10/17/23 18:23	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:23	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	H H3	13		ng/L		10/12/23 17:37	10/17/23 18:23	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:23	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:23	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:23	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND	H H3	10		ng/L		10/12/23 17:37	10/17/23 18:23	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:23	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid (9Cl-PF3ONS)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:23	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND	H H3	10		ng/L		10/12/23 17:37	10/17/23 18:23	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:23	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:23	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:23	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:23	1
6:2 FTUCA	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:23	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:23	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:23	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:23	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:23	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C8 FOSA	95		25 - 150				10/12/23 17:37	10/17/23 18:23	1
13C4 PFBA	42		25 - 150				10/12/23 17:37	10/17/23 18:23	1
13C5 PFPeA	90		25 - 150				10/12/23 17:37	10/17/23 18:23	1
13C2 PFHxA	94		25 - 150				10/12/23 17:37	10/17/23 18:23	1
13C4 PFHpA	90		25 - 150				10/12/23 17:37	10/17/23 18:23	1
13C4 PFOA	94		25 - 150				10/12/23 17:37	10/17/23 18:23	1
13C5 PFNA	84		25 - 150				10/12/23 17:37	10/17/23 18:23	1
13C2 PFDA	85		25 - 150				10/12/23 17:37	10/17/23 18:23	1
13C2 PFUnA	85		25 - 150				10/12/23 17:37	10/17/23 18:23	1
13C2 PFDoA	91		25 - 150				10/12/23 17:37	10/17/23 18:23	1
13C2 PFTeDA	94		25 - 150				10/12/23 17:37	10/17/23 18:23	1

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Client Sample Results

Client: Hawaii Department of Health
Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Client Sample ID: SIWWTP-EFFL

Lab Sample ID: 320-105614-2

Date Collected: 09/19/23 08:31

Matrix: Water

Date Received: 10/04/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxDA	69		25 - 150	10/12/23 17:37	10/17/23 18:23	1
13C3 PFBS	87		25 - 150	10/12/23 17:37	10/17/23 18:23	1
18O2 PFHxS	92		25 - 150	10/12/23 17:37	10/17/23 18:23	1
13C4 PFOS	81		25 - 150	10/12/23 17:37	10/17/23 18:23	1
d5-NEtFOSAA	99		25 - 150	10/12/23 17:37	10/17/23 18:23	1
d3-NMeFOSAA	99		25 - 150	10/12/23 17:37	10/17/23 18:23	1
M2-4:2 FTS	0		0 - 10	10/12/23 17:37	10/17/23 18:23	1
M2-6:2 FTS	124		25 - 150	10/12/23 17:37	10/17/23 18:23	1
M2-8:2 FTS	104		25 - 150	10/12/23 17:37	10/17/23 18:23	1
d-N-MeFOSA-M	75		25 - 150	10/12/23 17:37	10/17/23 18:23	1
d-N-EtFOSA-M	79		25 - 150	10/12/23 17:37	10/17/23 18:23	1
d7-N-MeFOSE-M	72		25 - 150	10/12/23 17:37	10/17/23 18:23	1
d9-N-EtFOSE-M	73		25 - 150	10/12/23 17:37	10/17/23 18:23	1
13C3 HFPO-DA	86		25 - 150	10/12/23 17:37	10/17/23 18:23	1
13C-6:2 FTCA	83		25 - 150	10/12/23 17:37	10/17/23 18:23	1
13C-8:2 FTCA	76		25 - 150	10/12/23 17:37	10/17/23 18:23	1
13C2 10:2 FTS	117		25 - 150	10/12/23 17:37	10/17/23 18:23	1
13C-6:2 FTUCA	125		25 - 150	10/12/23 17:37	10/17/23 18:23	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/23/23 19:28	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	86		25 - 150	10/12/23 17:37	10/23/23 19:28	1

Method: ELLE - Lancaster ELLE SOP - Total or Organic Fluorine by Combustion Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Adsorbable Organic Fluorine (AOF)	ND		40		ug/L		11/06/23 10:01	11/07/23 18:01	1

Method: TAL SOP Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
PFBA	0.00				ng/L			11/01/23 15:42	1
PFPA	0.00				ng/L			11/01/23 15:42	1
PFHxA	0.00				ng/L			11/01/23 15:42	1
PFHpA	0.00				ng/L			11/01/23 15:42	1
PFOA	0.00				ng/L			11/01/23 15:42	1
PFNA	0.00				ng/L			11/01/23 15:42	1
Total PFCA	0.00				ng/L			11/01/23 15:42	1

Method: TAL SOP Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	17				ng/L			10/17/23 16:21	1

Method: TAL SOP Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	15				ng/L			10/17/23 18:23	1

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Client Sample Results

Client: Hawaii Department of Health
Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Client Sample ID: HNWWTP-EFFL

Lab Sample ID: 320-105614-3

Date Collected: 09/19/23 07:40

Matrix: Water

Date Received: 10/04/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND	H H3	13		ng/L		10/15/23 19:30	10/17/23 16:32	1
Perfluoropentanoic acid (PFPeA)	8.0	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:32	1
Perfluorohexanoic acid (PFHxA)	7.5	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:32	1
Perfluoroheptanoic acid (PFHpA)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:32	1
Perfluorooctanoic acid (PFOA)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:32	1
Perfluorononanoic acid (PFNA)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:32	1
Perfluorodecanoic acid (PFDA)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:32	1
Perfluoroundecanoic acid (PFUnA)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:32	1
Perfluorododecanoic acid (PFDoA)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:32	1
Perfluorotridecanoic acid (PFTrDA)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:32	1
Perfluorotetradecanoic acid (PFTeA)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:32	1
Perfluorobutanesulfonic acid (PFBS)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:32	1
Perfluoropentanesulfonic acid (PFPeS)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:32	1
Perfluorohexanesulfonic acid (PFHxS)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:32	1
Perfluoroheptanesulfonic acid (PFHpS)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:32	1
Perfluorooctanesulfonic acid (PFOS)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:32	1
Perfluorononanesulfonic acid (PFNS)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:32	1
Perfluorodecanesulfonic acid (PFDS)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:32	1
Perfluorododecanesulfonic acid (PFDoS)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:32	1
Perfluorooctanesulfonamide (FOSA)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:32	1
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	H H3	13		ng/L		10/15/23 19:30	10/17/23 16:32	1
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	H H3	13		ng/L		10/15/23 19:30	10/17/23 16:32	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:32	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	H H3	13		ng/L		10/15/23 19:30	10/17/23 16:32	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:32	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:32	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:32	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND	H H3	10		ng/L		10/15/23 19:30	10/17/23 16:32	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:32	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid (9Cl-PF3ONS)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:32	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND	H H3	10		ng/L		10/15/23 19:30	10/17/23 16:32	1
11-Chloroeicosafuoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:32	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:32	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	8.6	H H3 *	5.0		ng/L		10/15/23 19:30	10/17/23 16:32	1

Eurofins Sacramento

Client Sample Results

Client: Hawaii Department of Health
Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Client Sample ID: HNWWTP-EFFL

Lab Sample ID: 320-105614-3

Date Collected: 09/19/23 07:40

Matrix: Water

Date Received: 10/04/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:32	1
6:2 FTUCA	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:32	1
Nonafluoro-3,6-dioxiheptanoic acid (NFDHA)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:32	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:32	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:32	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/17/23 16:32	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	86		25 - 150	10/15/23 19:30	10/17/23 16:32	1
13C4 PFBA	80		25 - 150	10/15/23 19:30	10/17/23 16:32	1
13C5 PFPeA	94		25 - 150	10/15/23 19:30	10/17/23 16:32	1
13C2 PFHxA	92		25 - 150	10/15/23 19:30	10/17/23 16:32	1
13C4 PFHpA	88		25 - 150	10/15/23 19:30	10/17/23 16:32	1
13C4 PFOA	94		25 - 150	10/15/23 19:30	10/17/23 16:32	1
13C5 PFNA	88		25 - 150	10/15/23 19:30	10/17/23 16:32	1
13C2 PFDA	88		25 - 150	10/15/23 19:30	10/17/23 16:32	1
13C2 PFUnA	88		25 - 150	10/15/23 19:30	10/17/23 16:32	1
13C2 PFDoA	85		25 - 150	10/15/23 19:30	10/17/23 16:32	1
13C2 PFTeDA	70		25 - 150	10/15/23 19:30	10/17/23 16:32	1
13C2 PFHxDA	51		25 - 150	10/15/23 19:30	10/17/23 16:32	1
13C3 PFBS	83		25 - 150	10/15/23 19:30	10/17/23 16:32	1
18O2 PFHxS	88		25 - 150	10/15/23 19:30	10/17/23 16:32	1
13C4 PFOS	80		25 - 150	10/15/23 19:30	10/17/23 16:32	1
d5-NEtFOSAA	81		25 - 150	10/15/23 19:30	10/17/23 16:32	1
d3-NMeFOSAA	85		25 - 150	10/15/23 19:30	10/17/23 16:32	1
M2-4:2 FTS	113		25 - 150	10/15/23 19:30	10/17/23 16:32	1
M2-6:2 FTS	144		25 - 150	10/15/23 19:30	10/17/23 16:32	1
M2-8:2 FTS	122		25 - 150	10/15/23 19:30	10/17/23 16:32	1
d-N-MeFOSA-M	65		25 - 150	10/15/23 19:30	10/17/23 16:32	1
d-N-EtFOSA-M	74		25 - 150	10/15/23 19:30	10/17/23 16:32	1
d7-N-MeFOSE-M	73		25 - 150	10/15/23 19:30	10/17/23 16:32	1
d9-N-EtFOSE-M	72		25 - 150	10/15/23 19:30	10/17/23 16:32	1
13C3 HFPO-DA	86		25 - 150	10/15/23 19:30	10/17/23 16:32	1
13C-6:2 FTCA	76		25 - 150	10/15/23 19:30	10/17/23 16:32	1
13C-8:2 FTCA	72		25 - 150	10/15/23 19:30	10/17/23 16:32	1
13C2 10:2 FTS	104		25 - 150	10/15/23 19:30	10/17/23 16:32	1
13C-6:2 FTUCA	119		25 - 150	10/15/23 19:30	10/17/23 16:32	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND	H H3	5.0		ng/L		10/15/23 19:30	10/23/23 21:19	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	85		25 - 150	10/15/23 19:30	10/23/23 21:19	1

Eurofins Sacramento

Client Sample Results

Client: Hawaii Department of Health
Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Client Sample ID: HNWWTP-EFFL

Lab Sample ID: 320-105614-3

Date Collected: 09/19/23 07:40

Matrix: Water

Date Received: 10/04/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND	H H3 **	13		ng/L		10/12/23 17:37	10/17/23 18:34	1
Perfluoropentanoic acid (PFPeA)	9.2	H H3 **	5.0		ng/L		10/12/23 17:37	10/17/23 18:34	1
Perfluorohexanoic acid (PFHxA)	5.8	H H3 **	5.0		ng/L		10/12/23 17:37	10/17/23 18:34	1
Perfluoroheptanoic acid (PFHpA)	ND	H H3 **	5.0		ng/L		10/12/23 17:37	10/17/23 18:34	1
Perfluorooctanoic acid (PFOA)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:34	1
Perfluorononanoic acid (PFNA)	ND	H H3 **	5.0		ng/L		10/12/23 17:37	10/17/23 18:34	1
Perfluorodecanoic acid (PFDA)	ND	H H3 **	5.0		ng/L		10/12/23 17:37	10/17/23 18:34	1
Perfluoroundecanoic acid (PFUnA)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:34	1
Perfluorododecanoic acid (PFDoA)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:34	1
Perfluorotridecanoic acid (PFTrDA)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:34	1
Perfluorotetradecanoic acid (PFTeA)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:34	1
Perfluorobutanesulfonic acid (PFBS)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:34	1
Perfluoropentanesulfonic acid (PFPeS)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:34	1
Perfluorohexanesulfonic acid (PFHxS)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:34	1
Perfluoroheptanesulfonic acid (PFHpS)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:34	1
Perfluorooctanesulfonic acid (PFOS)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:34	1
Perfluorononanesulfonic acid (PFNS)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:34	1
Perfluorodecanesulfonic acid (PFDS)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:34	1
Perfluorododecanesulfonic acid (PFDoS)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:34	1
Perfluorooctanesulfonamide (FOSA)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:34	1
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	H H3	13		ng/L		10/12/23 17:37	10/17/23 18:34	1
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	H H3	13		ng/L		10/12/23 17:37	10/17/23 18:34	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:34	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	H H3	13		ng/L		10/12/23 17:37	10/17/23 18:34	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:34	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:34	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:34	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND	H H3	10		ng/L		10/12/23 17:37	10/17/23 18:34	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:34	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid (9Cl-PF3ONS)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:34	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND	H H3	10		ng/L		10/12/23 17:37	10/17/23 18:34	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:34	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:34	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	7.0	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:34	1

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Client Sample Results

Client: Hawaii Department of Health
Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Client Sample ID: HNWWTP-EFFL

Lab Sample ID: 320-105614-3

Date Collected: 09/19/23 07:40

Matrix: Water

Date Received: 10/04/23 09:30

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:34	1
6:2 FTUCA	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:34	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:34	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:34	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:34	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/17/23 18:34	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	90		25 - 150	10/12/23 17:37	10/17/23 18:34	1
13C4 PFBA	79		25 - 150	10/12/23 17:37	10/17/23 18:34	1
13C5 PFPeA	97		25 - 150	10/12/23 17:37	10/17/23 18:34	1
13C2 PFHxA	97		25 - 150	10/12/23 17:37	10/17/23 18:34	1
13C4 PFHpA	91		25 - 150	10/12/23 17:37	10/17/23 18:34	1
13C4 PFOA	96		25 - 150	10/12/23 17:37	10/17/23 18:34	1
13C5 PFNA	92		25 - 150	10/12/23 17:37	10/17/23 18:34	1
13C2 PFDA	96		25 - 150	10/12/23 17:37	10/17/23 18:34	1
13C2 PFUnA	95		25 - 150	10/12/23 17:37	10/17/23 18:34	1
13C2 PFDoA	79		25 - 150	10/12/23 17:37	10/17/23 18:34	1
13C2 PFTeDA	90		25 - 150	10/12/23 17:37	10/17/23 18:34	1
13C2 PFHxDA	82		25 - 150	10/12/23 17:37	10/17/23 18:34	1
13C3 PFBS	91		25 - 150	10/12/23 17:37	10/17/23 18:34	1
18O2 PFHxS	99		25 - 150	10/12/23 17:37	10/17/23 18:34	1
13C4 PFOS	85		25 - 150	10/12/23 17:37	10/17/23 18:34	1
d5-NEtFOSAA	103		25 - 150	10/12/23 17:37	10/17/23 18:34	1
d3-NMeFOSAA	104		25 - 150	10/12/23 17:37	10/17/23 18:34	1
M2-4:2 FTS	0		0 - 10	10/12/23 17:37	10/17/23 18:34	1
M2-6:2 FTS	137		25 - 150	10/12/23 17:37	10/17/23 18:34	1
M2-8:2 FTS	119		25 - 150	10/12/23 17:37	10/17/23 18:34	1
d-N-MeFOSA-M	59		25 - 150	10/12/23 17:37	10/17/23 18:34	1
d-N-EtFOSA-M	60		25 - 150	10/12/23 17:37	10/17/23 18:34	1
d7-N-MeFOSE-M	67		25 - 150	10/12/23 17:37	10/17/23 18:34	1
d9-N-EtFOSE-M	64		25 - 150	10/12/23 17:37	10/17/23 18:34	1
13C3 HFPO-DA	92		25 - 150	10/12/23 17:37	10/17/23 18:34	1
13C-6:2 FTCA	79		25 - 150	10/12/23 17:37	10/17/23 18:34	1
13C-8:2 FTCA	83		25 - 150	10/12/23 17:37	10/17/23 18:34	1
13C2 10:2 FTS	102		25 - 150	10/12/23 17:37	10/17/23 18:34	1
13C-6:2 FTUCA	135		25 - 150	10/12/23 17:37	10/17/23 18:34	1

Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND	H H3	5.0		ng/L		10/12/23 17:37	10/23/23 19:39	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
13C3 PFBS	84		25 - 150	10/12/23 17:37	10/23/23 19:39	1			

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Client Sample Results

Client: Hawaii Department of Health
 Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Client Sample ID: HNWWTP-EFFL

Lab Sample ID: 320-105614-3

Date Collected: 09/19/23 07:40

Matrix: Water

Date Received: 10/04/23 09:30

Method: ELLE - Lancaster ELLE SOP - Total or Organic Fluorine by Combustion Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Adsorbable Organic Fluorine (AOF)	ND		40		ug/L		11/06/23 10:01	11/07/23 19:06	1

Method: TAL SOP Total PFCA-Dif - Total PFCA (Treatment Difference)

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
PFBA	0.00				ng/L			11/01/23 15:42	1
PFPA	1.1				ng/L			11/01/23 15:42	1
PFHxA	0.00				ng/L			11/01/23 15:42	1
PFHpA	0.00				ng/L			11/01/23 15:42	1
PFOA	0.00				ng/L			11/01/23 15:42	1
PFNA	0.00				ng/L			11/01/23 15:42	1
Total PFCA	0.00				ng/L			11/01/23 15:42	1

Method: TAL SOP Total PFCA-Sum - Total PFCA (Summary) - Pre-Treatment

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	16				ng/L			10/17/23 16:32	1

Method: TAL SOP Total PFCA-Sum - Total PFCA (Summary) - Post-Treatment

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	15				ng/L			10/17/23 18:34	1

Total Oxidation Precursors

Client: Hawaii Department of Health
Project/Site: Wastewater Treatment

TestAmerica Job ID: 320-105614-1

Client Sample ID: LAWWTP-EFFL

Lab Sample ID: 320-105614-1
Matrix: Water

Analyte	Pre-Treatment Method			Post-Treatment Method			Difference ¹	
	537 (modified)			537 (modified)			Result	Unit
	Result	Qualifier	Unit	Result	Qualifier	Unit		
Perfluorobutanoic acid (PFBA)	14		ng/L	45		ng/L	31	ng/L
Perfluoropentanoic acid (PFPeA)	520		ng/L	420		ng/L	0.00	ng/L
Perfluorohexanoic acid (PFHxA)	280		ng/L	210		ng/L	0.00	ng/L
Perfluoroheptanoic acid (PFHpA)	ND		ng/L	ND		ng/L	0.00	ng/L
Perfluorooctanoic acid (PFOA)	ND		ng/L	ND		ng/L	0.00	ng/L
Perfluorononanoic acid (PFNA)	ND		ng/L	ND		ng/L	0.00	ng/L
Total PFCA	810		ng/L	680		ng/L	0.00	ng/L

Client Sample ID: SIWWTP-EFFL

Lab Sample ID: 320-105614-2
Matrix: Water

Analyte	Pre-Treatment Method			Post-Treatment Method			Difference ¹	
	537 (modified)			537 (modified)			Result	Unit
	Result	Qualifier	Unit	Result	Qualifier	Unit		
Perfluorobutanoic acid (PFBA)	ND		ng/L	ND		ng/L	0.00	ng/L
Perfluoropentanoic acid (PFPeA)	9.7		ng/L	7.8		ng/L	0.00	ng/L
Perfluorohexanoic acid (PFHxA)	7.6		ng/L	7.0		ng/L	0.00	ng/L
Perfluoroheptanoic acid (PFHpA)	ND		ng/L	ND		ng/L	0.00	ng/L
Perfluorooctanoic acid (PFOA)	ND		ng/L	ND		ng/L	0.00	ng/L
Perfluorononanoic acid (PFNA)	ND		ng/L	ND		ng/L	0.00	ng/L
Total PFCA	17		ng/L	15		ng/L	0.00	ng/L

Client Sample ID: HNWWTP-EFFL

Lab Sample ID: 320-105614-3
Matrix: Water

Analyte	Pre-Treatment Method			Post-Treatment Method			Difference ¹	
	537 (modified)			537 (modified)			Result	Unit
	Result	Qualifier	Unit	Result	Qualifier	Unit		
Perfluorobutanoic acid (PFBA)	ND		ng/L	ND		ng/L	0.00	ng/L
Perfluoropentanoic acid (PFPeA)	8.0		ng/L	9.2		ng/L	1.1	ng/L
Perfluorohexanoic acid (PFHxA)	7.5		ng/L	5.8		ng/L	0.00	ng/L
Perfluoroheptanoic acid (PFHpA)	ND		ng/L	ND		ng/L	0.00	ng/L
Perfluorooctanoic acid (PFOA)	ND		ng/L	ND		ng/L	0.00	ng/L
Perfluorononanoic acid (PFNA)	ND		ng/L	ND		ng/L	0.00	ng/L
Total PFCA	16		ng/L	15		ng/L	0.00	ng/L

¹ Difference = Post-Treatment - Pre-Treatment

Isotope Dilution Summary

Client: Hawaii Department of Health
Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Pre-Treatment

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFOSA (25-150)	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)
320-105614-1	LAWWTP-EFFL	95	91	96	93	91	93	89	95
320-105614-1 - RA	LAWWTP-EFFL								
320-105614-2	SIWWTP-EFFL	81	87	101	98	94	96	94	90
320-105614-2 - RA	SIWWTP-EFFL								
320-105614-3	HNWWTP-EFFL	86	80	94	92	88	94	88	88
320-105614-3 - RA	HNWWTP-EFFL								
LCS 320-713360/2-A	Lab Control Sample	115	96	99	100	98	99	99	99
LCS 320-713360/2-A - RA	Lab Control Sample								
LCSD 320-713360/3-A	Lab Control Sample Dup	101	92	97	96	93	97	90	98
LCSD 320-713360/3-A - RA	Lab Control Sample Dup								
MB 320-713360/1-A	Method Blank	99	86	93	94	88	94	91	95
MB 320-713360/1-A - RA	Method Blank								

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFOA (25-150)	PFDoA (25-150)	PFTDA (25-150)	PFHxDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	d5NEFOS (25-150)
320-105614-1	LAWWTP-EFFL	99	96	111	71	92	96	84	105
320-105614-1 - RA	LAWWTP-EFFL					85			
320-105614-2	SIWWTP-EFFL	78	84	85	77	94	94	86	71
320-105614-2 - RA	SIWWTP-EFFL					79			
320-105614-3	HNWWTP-EFFL	88	85	70	51	83	88	80	81
320-105614-3 - RA	HNWWTP-EFFL					85			
LCS 320-713360/2-A	Lab Control Sample	112	118	124	94	103	110	99	130
LCS 320-713360/2-A - RA	Lab Control Sample					87			
LCSD 320-713360/3-A	Lab Control Sample Dup	99	97	112	78	93	104	93	126
LCSD 320-713360/3-A - RA	Lab Control Sample Dup					87			
MB 320-713360/1-A	Method Blank	104	102	103	78	90	98	89	115
MB 320-713360/1-A - RA	Method Blank					85			

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	d3NMFOS (25-150)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)	dMeFOSA (25-150)	dEtFOSA (25-150)	NMFM (25-150)	NEFM (25-150)
320-105614-1	LAWWTP-EFFL	100	106	119	107	74	70	77	65
320-105614-1 - RA	LAWWTP-EFFL								
320-105614-2	SIWWTP-EFFL	78	131	166 *5+	120	50	65	74	74
320-105614-2 - RA	SIWWTP-EFFL								
320-105614-3	HNWWTP-EFFL	85	113	144	122	65	74	73	72
320-105614-3 - RA	HNWWTP-EFFL								
LCS 320-713360/2-A	Lab Control Sample	126	116	127	136	93	98	93	91
LCS 320-713360/2-A - RA	Lab Control Sample								
LCSD 320-713360/3-A	Lab Control Sample Dup	120	101	121	134	84	88	86	82
LCSD 320-713360/3-A - RA	Lab Control Sample Dup								
MB 320-713360/1-A	Method Blank	113	107	120	115	88	91	79	70
MB 320-713360/1-A - RA	Method Blank								

		Percent Isotope Dilution Recovery (Acceptance Limits)				
Lab Sample ID	Client Sample ID	HFPODA (25-150)	MFHEA (25-150)	MFOEA (25-150)	M102FTS (25-150)	MFHUEA (25-150)
320-105614-1	LAWWTP-EFFL	88	75	83	123	127
320-105614-1 - RA	LAWWTP-EFFL					
320-105614-2	SIWWTP-EFFL	90	79	67	74	122
320-105614-2 - RA	SIWWTP-EFFL					

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Isotope Dilution Summary

Client: Hawaii Department of Health
Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Matrix: Water

Prep Type: Pre-Treatment

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)				
		HFPODA (25-150)	MFHEA (25-150)	MFOEA (25-150)	M102FTS (25-150)	MFHUEA (25-150)
320-105614-3	HNWWTP-EFFL	86	76	72	104	119
320-105614-3 - RA	HNWWTP-EFFL					
LCS 320-713360/2-A	Lab Control Sample	93	82	91	136	138
LCS 320-713360/2-A - RA	Lab Control Sample					
LCSD 320-713360/3-A	Lab Control Sample Dup	91	80	83	119	129
LCSD 320-713360/3-A - RA	Lab Control Sample Dup					
MB 320-713360/1-A	Method Blank	85	83	80	121	122
MB 320-713360/1-A - RA	Method Blank					

Surrogate Legend

PFOSA = 13C8 FOSA
 PFBA = 13C4 PFBA
 PFPeA = 13C5 PFPeA
 PFHxA = 13C2 PFHxA
 C4PFHA = 13C4 PFHpA
 PFOA = 13C4 PFOA
 PFNA = 13C5 PFNA
 PFDA = 13C2 PFDA
 PFUnA = 13C2 PFUnA
 PFDaA = 13C2 PFDaA
 PFTDA = 13C2 PFTeDA
 PFHxDA = 13C2 PFHxDA
 C3PFBS = 13C3 PFBS
 PFHxS = 18O2 PFHxS
 PFOS = 13C4 PFOS
 d5NEFOS = d5-NEtFOSAA
 d3NMFOS = d3-NMeFOSAA
 M242FTS = M2-4:2 FTS
 M262FTS = M2-6:2 FTS
 M282FTS = M2-8:2 FTS
 dMeFOSA = d-N-MeFOSA-M
 dEtFOSA = d-N-EtFOSA-M
 NMFM = d7-N-MeFOSE-M
 NEFM = d9-N-EtFOSE-M
 HFPODA = 13C3 HFPO-DA
 MFHEA = 13C-6:2 FTCA
 MFOEA = 13C-8:2 FTCA
 M102FTS = 13C2 10:2 FTS
 MFHUEA = 13C-6:2 FTUCA

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Post-Treatment

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFOSA (25-150)	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)
320-105614-1	LAWWTP-EFFL	86	93	99	98	100	96	90	87
320-105614-1 - RA	LAWWTP-EFFL								
320-105614-2	SIWWTP-EFFL	95	42	90	94	90	94	84	85
320-105614-2 - RA	SIWWTP-EFFL								
320-105614-3	HNWWTP-EFFL	90	79	97	97	91	96	92	96

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Isotope Dilution Summary

Client: Hawaii Department of Health
Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Matrix: Water

Prep Type: Post-Treatment

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFOSA (25-150)	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)
320-105614-3 - RA	HNWWTP-EFFL								
LCS 320-712832/2-A	Lab Control Sample	109	32	96	101	97	101	96	96
LCS 320-712832/2-A - RA	Lab Control Sample								
LCSD 320-712832/3-A	Lab Control Sample Dup	105	82	102	103	98	98	94	106
LCSD 320-712832/3-A - RA	Lab Control Sample Dup								
MB 320-712832/1-A	Method Blank	94	82	97	94	92	95	89	96
MB 320-712832/1-A - RA	Method Blank								

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFUnA (25-150)	PFDoA (25-150)	PFTDA (25-150)	PFHxDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	d5NEFOS (25-150)
320-105614-1	LAWWTP-EFFL	95	94	112	88	95	98	82	113
320-105614-1 - RA	LAWWTP-EFFL					84			
320-105614-2	SIWWTP-EFFL	85	91	94	69	87	92	81	99
320-105614-2 - RA	SIWWTP-EFFL					86			
320-105614-3	HNWWTP-EFFL	95	79	90	82	91	99	85	103
320-105614-3 - RA	HNWWTP-EFFL					84			
LCS 320-712832/2-A	Lab Control Sample	103	114	123	99	97	101	95	118
LCS 320-712832/2-A - RA	Lab Control Sample					91			
LCSD 320-712832/3-A	Lab Control Sample Dup	106	108	113	92	92	101	94	121
LCSD 320-712832/3-A - RA	Lab Control Sample Dup					94			
MB 320-712832/1-A	Method Blank	100	80	111	73	90	99	86	120
MB 320-712832/1-A - RA	Method Blank					87			

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	d3NMFOS (25-150)	M242FTS (0-10)	M262FTS (25-150)	M282FTS (25-150)	dMeFOSA (25-150)	dEtFOSA (25-150)	NMFm (25-150)	NEFM (25-150)
320-105614-1	LAWWTP-EFFL	99	0	106	102	61	71	74	59
320-105614-1 - RA	LAWWTP-EFFL								
320-105614-2	SIWWTP-EFFL	99	0	124	104	75	79	72	73
320-105614-2 - RA	SIWWTP-EFFL								
320-105614-3	HNWWTP-EFFL	104	0	137	119	59	60	67	64
320-105614-3 - RA	HNWWTP-EFFL								
LCS 320-712832/2-A	Lab Control Sample	128	0	102	118	102	95	83	86
LCS 320-712832/2-A - RA	Lab Control Sample								
LCSD 320-712832/3-A	Lab Control Sample Dup	115	0	118	119	90	91	86	83
LCSD 320-712832/3-A - RA	Lab Control Sample Dup								
MB 320-712832/1-A	Method Blank	111	0	110	117	78	78	79	71
MB 320-712832/1-A - RA	Method Blank								

		Percent Isotope Dilution Recovery (Acceptance Limits)				
Lab Sample ID	Client Sample ID	HFPODA (25-150)	MFHEA (25-150)	MFOEA (25-150)	M102FTS (25-150)	MFHUEA (25-150)
320-105614-1	LAWWTP-EFFL	99	85	89	103	132
320-105614-1 - RA	LAWWTP-EFFL					
320-105614-2	SIWWTP-EFFL	86	83	76	117	125
320-105614-2 - RA	SIWWTP-EFFL					
320-105614-3	HNWWTP-EFFL	92	79	83	102	135
320-105614-3 - RA	HNWWTP-EFFL					
LCS 320-712832/2-A	Lab Control Sample	94	82	87	120	131
LCS 320-712832/2-A - RA	Lab Control Sample					
LCSD 320-712832/3-A	Lab Control Sample Dup	100	75	85	126	131

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Isotope Dilution Summary

Client: Hawaii Department of Health
 Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Matrix: Water

Prep Type: Post-Treatment

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)				
		HFPODA (25-150)	MFHEA (25-150)	MFOEA (25-150)	M102FTS (25-150)	MFHUEA (25-150)
LCSD 320-712832/3-A - RA	Lab Control Sample Dup					
MB 320-712832/1-A	Method Blank	92	78	76	125	128
MB 320-712832/1-A - RA	Method Blank					

Surrogate Legend

- PFOSA = 13C8 FOSA
- PFBA = 13C4 PFBA
- PFPeA = 13C5 PFPeA
- PFHxA = 13C2 PFHxA
- C4PFHA = 13C4 PFHpA
- PFOA = 13C4 PFOA
- PFNA = 13C5 PFNA
- PFDA = 13C2 PFDA
- PFUnA = 13C2 PFUnA
- PFDoA = 13C2 PFDoA
- PFTDA = 13C2 PFTeDA
- PFHxDA = 13C2 PFHxDA
- C3PFBS = 13C3 PFBS
- PFHxS = 18O2 PFHxS
- PFOS = 13C4 PFOS
- d5NEFOS = d5-NEtFOSAA
- d3NMFOS = d3-NMeFOSAA
- M242FTS = M2-4:2 FTS
- M262FTS = M2-6:2 FTS
- M282FTS = M2-8:2 FTS
- dMeFOSA = d-N-MeFOSA-M
- dEtFOSA = d-N-EtFOSA-M
- NMFM = d7-N-MeFOSE-M
- NEFM = d9-N-EtFOSE-M
- HFPODA = 13C3 HFPO-DA
- MFHEA = 13C-6:2 FTCA
- MFOEA = 13C-8:2 FTCA
- M102FTS = 13C2 10:2 FTS
- MFHUEA = 13C-6:2 FTUCA

QC Sample Results

Client: Hawaii Department of Health
 Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-713360/1-A
Matrix: Water
Analysis Batch: 713699

Client Sample ID: Method Blank
Prep Type: Pre-Treatment
Prep Batch: 713360

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorobutanoic acid (PFBA)	ND		13		ng/L		10/15/23 19:30	10/17/23 15:14	1
Perfluoropentanoic acid (PFPeA)	ND		5.0		ng/L		10/15/23 19:30	10/17/23 15:14	1
Perfluorohexanoic acid (PFHxA)	ND		5.0		ng/L		10/15/23 19:30	10/17/23 15:14	1
Perfluoroheptanoic acid (PFHpA)	ND		5.0		ng/L		10/15/23 19:30	10/17/23 15:14	1
Perfluorooctanoic acid (PFOA)	ND		5.0		ng/L		10/15/23 19:30	10/17/23 15:14	1
Perfluorononanoic acid (PFNA)	ND		5.0		ng/L		10/15/23 19:30	10/17/23 15:14	1
Perfluorodecanoic acid (PFDA)	ND		5.0		ng/L		10/15/23 19:30	10/17/23 15:14	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0		ng/L		10/15/23 19:30	10/17/23 15:14	1
Perfluorododecanoic acid (PFDoA)	ND		5.0		ng/L		10/15/23 19:30	10/17/23 15:14	1
Perfluorotridecanoic acid (PFTrDA)	ND		5.0		ng/L		10/15/23 19:30	10/17/23 15:14	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0		ng/L		10/15/23 19:30	10/17/23 15:14	1
Perfluorobutanesulfonic acid (PFBS)	ND		5.0		ng/L		10/15/23 19:30	10/17/23 15:14	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0		ng/L		10/15/23 19:30	10/17/23 15:14	1
Perfluorohexanesulfonic acid (PFHxS)	ND		5.0		ng/L		10/15/23 19:30	10/17/23 15:14	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0		ng/L		10/15/23 19:30	10/17/23 15:14	1
Perfluorooctanesulfonic acid (PFOS)	ND		5.0		ng/L		10/15/23 19:30	10/17/23 15:14	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0		ng/L		10/15/23 19:30	10/17/23 15:14	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0		ng/L		10/15/23 19:30	10/17/23 15:14	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0		ng/L		10/15/23 19:30	10/17/23 15:14	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0		ng/L		10/15/23 19:30	10/17/23 15:14	1
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		13		ng/L		10/15/23 19:30	10/17/23 15:14	1
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		13		ng/L		10/15/23 19:30	10/17/23 15:14	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		5.0		ng/L		10/15/23 19:30	10/17/23 15:14	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		13		ng/L		10/15/23 19:30	10/17/23 15:14	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		5.0		ng/L		10/15/23 19:30	10/17/23 15:14	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		5.0		ng/L		10/15/23 19:30	10/17/23 15:14	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		5.0		ng/L		10/15/23 19:30	10/17/23 15:14	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		10		ng/L		10/15/23 19:30	10/17/23 15:14	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		5.0		ng/L		10/15/23 19:30	10/17/23 15:14	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		5.0		ng/L		10/15/23 19:30	10/17/23 15:14	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		10		ng/L		10/15/23 19:30	10/17/23 15:14	1
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		5.0		ng/L		10/15/23 19:30	10/17/23 15:14	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0		ng/L		10/15/23 19:30	10/17/23 15:14	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		5.0		ng/L		10/15/23 19:30	10/17/23 15:14	1

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QC Sample Results

Client: Hawaii Department of Health
Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-713360/1-A
Matrix: Water
Analysis Batch: 713699

Client Sample ID: Method Blank
Prep Type: Pre-Treatment
Prep Batch: 713360

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		5.0		ng/L		10/15/23 19:30	10/17/23 15:14	1
6:2 FTUCA	ND		5.0		ng/L		10/15/23 19:30	10/17/23 15:14	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		5.0		ng/L		10/15/23 19:30	10/17/23 15:14	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		5.0		ng/L		10/15/23 19:30	10/17/23 15:14	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		5.0		ng/L		10/15/23 19:30	10/17/23 15:14	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		5.0		ng/L		10/15/23 19:30	10/17/23 15:14	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	99		25 - 150	10/15/23 19:30	10/17/23 15:14	1
13C4 PFBA	86		25 - 150	10/15/23 19:30	10/17/23 15:14	1
13C5 PFPeA	93		25 - 150	10/15/23 19:30	10/17/23 15:14	1
13C2 PFHxA	94		25 - 150	10/15/23 19:30	10/17/23 15:14	1
13C4 PFHpA	88		25 - 150	10/15/23 19:30	10/17/23 15:14	1
13C4 PFOA	94		25 - 150	10/15/23 19:30	10/17/23 15:14	1
13C5 PFNA	91		25 - 150	10/15/23 19:30	10/17/23 15:14	1
13C2 PFDA	95		25 - 150	10/15/23 19:30	10/17/23 15:14	1
13C2 PFUnA	104		25 - 150	10/15/23 19:30	10/17/23 15:14	1
13C2 PFDoA	102		25 - 150	10/15/23 19:30	10/17/23 15:14	1
13C2 PFTeDA	103		25 - 150	10/15/23 19:30	10/17/23 15:14	1
13C2 PFHxDA	78		25 - 150	10/15/23 19:30	10/17/23 15:14	1
13C3 PFBS	90		25 - 150	10/15/23 19:30	10/17/23 15:14	1
18O2 PFHxS	98		25 - 150	10/15/23 19:30	10/17/23 15:14	1
13C4 PFOS	89		25 - 150	10/15/23 19:30	10/17/23 15:14	1
d5-NEtFOSAA	115		25 - 150	10/15/23 19:30	10/17/23 15:14	1
d3-NMeFOSAA	113		25 - 150	10/15/23 19:30	10/17/23 15:14	1
M2-4:2 FTS	107		25 - 150	10/15/23 19:30	10/17/23 15:14	1
M2-6:2 FTS	120		25 - 150	10/15/23 19:30	10/17/23 15:14	1
M2-8:2 FTS	115		25 - 150	10/15/23 19:30	10/17/23 15:14	1
d-N-MeFOSA-M	88		25 - 150	10/15/23 19:30	10/17/23 15:14	1
d-N-EtFOSA-M	91		25 - 150	10/15/23 19:30	10/17/23 15:14	1
d7-N-MeFOSE-M	79		25 - 150	10/15/23 19:30	10/17/23 15:14	1
d9-N-EtFOSE-M	70		25 - 150	10/15/23 19:30	10/17/23 15:14	1
13C3 HFPO-DA	85		25 - 150	10/15/23 19:30	10/17/23 15:14	1
13C-6:2 FTCA	83		25 - 150	10/15/23 19:30	10/17/23 15:14	1
13C-8:2 FTCA	80		25 - 150	10/15/23 19:30	10/17/23 15:14	1
13C2 10:2 FTS	121		25 - 150	10/15/23 19:30	10/17/23 15:14	1
13C-6:2 FTUCA	122		25 - 150	10/15/23 19:30	10/17/23 15:14	1

Lab Sample ID: LCS 320-713360/2-A
Matrix: Water
Analysis Batch: 713699

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 713360

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	100	106		ng/L		106	76 - 136
Perfluoropentanoic acid (PFPeA)	100	109		ng/L		109	71 - 131

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QC Sample Results

Client: Hawaii Department of Health
Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-713360/2-A
Matrix: Water
Analysis Batch: 713699

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 713360

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorohexanoic acid (PFHxA)	100	102		ng/L		102	73 - 133
Perfluoroheptanoic acid (PFHpA)	100	104		ng/L		104	72 - 132
Perfluorooctanoic acid (PFOA)	100	104		ng/L		104	70 - 130
Perfluorononanoic acid (PFNA)	100	105		ng/L		105	75 - 135
Perfluorodecanoic acid (PFDA)	100	113		ng/L		113	76 - 136
Perfluoroundecanoic acid (PFUnA)	100	105		ng/L		105	68 - 128
Perfluorododecanoic acid (PFDoA)	100	97.3		ng/L		97	71 - 131
Perfluorotridecanoic acid (PFTrDA)	100	84.5		ng/L		84	71 - 131
Perfluorotetradecanoic acid (PFTeA)	100	101		ng/L		101	70 - 130
Perfluorobutanesulfonic acid (PFBS)	88.8	94.3		ng/L		106	67 - 127
Perfluoropentanesulfonic acid (PFPeS)	94.0	99.7		ng/L		106	66 - 126
Perfluorohexanesulfonic acid (PFHxS)	91.2	86.0		ng/L		94	59 - 119
Perfluoroheptanesulfonic acid (PFHpS)	95.4	106		ng/L		111	76 - 136
Perfluorooctanesulfonic acid (PFOS)	93.0	96.4		ng/L		104	70 - 130
Perfluorononanesulfonic acid (PFNS)	96.2	118		ng/L		122	75 - 135
Perfluorodecanesulfonic acid (PFDS)	96.4	114		ng/L		118	71 - 131
Perfluorododecanesulfonic acid (PFDoS)	97.0	116		ng/L		119	67 - 127
Perfluorooctanesulfonamide (FOSA)	100	96.2		ng/L		96	73 - 133
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	100	96.3		ng/L		96	76 - 136
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	100	95.2		ng/L		95	76 - 136
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	93.8	107		ng/L		114	79 - 139
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	95.2	104		ng/L		110	59 - 175
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	96.0	99.9		ng/L		104	75 - 135
N-ethylperfluorooctane sulfonamide (NEtFOSA)	100	100		ng/L		100	78 - 138
N-methylperfluorooctane sulfonamide (NMeFOSA)	100	104		ng/L		104	67 - 154
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	100	93.1		ng/L		93	70 - 130
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	100	92.2		ng/L		92	71 - 131
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	93.4	94.3		ng/L		101	75 - 135

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QC Sample Results

Client: Hawaii Department of Health
Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-713360/2-A
Matrix: Water
Analysis Batch: 713699

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 713360

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Hexafluoropropylene Oxide	100	109		ng/L		109	51 - 173
Dimer Acid (HFPO-DA/GenX)							
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	94.4	87.5		ng/L		93	54 - 114
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	94.6	92.1		ng/L		97	79 - 139
3-Perfluoropentylpropanoic acid (5:3 FTCA)	100	131	*+	ng/L		131	70 - 130
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	100	111		ng/L		111	70 - 130
6:2 FTUCA	100	94.7		ng/L		95	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	100	124		ng/L		124	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	100	101		ng/L		101	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	100	94.4		ng/L		94	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	89.2	93.7		ng/L		105	70 - 130

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C8 FOSA	115		25 - 150
13C4 PFBA	96		25 - 150
13C5 PFPeA	99		25 - 150
13C2 PFHxA	100		25 - 150
13C4 PFHpA	98		25 - 150
13C4 PFOA	99		25 - 150
13C5 PFNA	99		25 - 150
13C2 PFDA	99		25 - 150
13C2 PFUnA	112		25 - 150
13C2 PFDoA	118		25 - 150
13C2 PFTeDA	124		25 - 150
13C2 PFHxDA	94		25 - 150
13C3 PFBS	103		25 - 150
18O2 PFHxS	110		25 - 150
13C4 PFOS	99		25 - 150
d5-NEtFOSAA	130		25 - 150
d3-NMeFOSAA	126		25 - 150
M2-4:2 FTS	116		25 - 150
M2-6:2 FTS	127		25 - 150
M2-8:2 FTS	136		25 - 150
d-N-MeFOSA-M	93		25 - 150
d-N-EtFOSA-M	98		25 - 150
d7-N-MeFOSE-M	93		25 - 150
d9-N-EtFOSE-M	91		25 - 150
13C3 HFPO-DA	93		25 - 150
13C-6:2 FTCA	82		25 - 150
13C-8:2 FTCA	91		25 - 150
13C2 10:2 FTS	136		25 - 150
13C-6:2 FTUCA	138		25 - 150

QC Sample Results

Client: Hawaii Department of Health
 Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-713360/3-A
Matrix: Water
Analysis Batch: 713699

Client Sample ID: Lab Control Sample Dup
Prep Type: Pre-Treatment
Prep Batch: 713360

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec	RPD	RPD
							Limits	RPD	Limit
Perfluorobutanoic acid (PFBA)	100	99.2		ng/L		99	76 - 136	6	30
Perfluoropentanoic acid (PFPeA)	100	98.0		ng/L		98	71 - 131	11	30
Perfluorohexanoic acid (PFHxA)	100	93.8		ng/L		94	73 - 133	8	30
Perfluoroheptanoic acid (PFHpA)	100	103		ng/L		103	72 - 132	2	30
Perfluorooctanoic acid (PFOA)	100	106		ng/L		106	70 - 130	2	30
Perfluorononanoic acid (PFNA)	100	106		ng/L		106	75 - 135	1	30
Perfluorodecanoic acid (PFDA)	100	103		ng/L		103	76 - 136	9	30
Perfluoroundecanoic acid (PFUnA)	100	108		ng/L		108	68 - 128	2	30
Perfluorododecanoic acid (PFDoA)	100	108		ng/L		108	71 - 131	10	30
Perfluorotridecanoic acid (PFTTrDA)	100	108		ng/L		108	71 - 131	24	30
Perfluorotetradecanoic acid (PFTeA)	100	98.1		ng/L		98	70 - 130	3	30
Perfluorobutanesulfonic acid (PFBS)	88.8	93.4		ng/L		105	67 - 127	1	30
Perfluoropentanesulfonic acid (PFPeS)	94.0	100		ng/L		107	66 - 126	0	30
Perfluorohexanesulfonic acid (PFHxS)	91.2	82.8		ng/L		91	59 - 119	4	30
Perfluoroheptanesulfonic acid (PFHpS)	95.4	106		ng/L		111	76 - 136	0	30
Perfluorooctanesulfonic acid (PFOS)	93.0	98.2		ng/L		106	70 - 130	2	30
Perfluorononanesulfonic acid (PFNS)	96.2	101		ng/L		105	75 - 135	15	30
Perfluorodecanesulfonic acid (PFDS)	96.4	111		ng/L		115	71 - 131	3	30
Perfluorododecanesulfonic acid (PFDoS)	97.0	103		ng/L		106	67 - 127	12	30
Perfluorooctanesulfonamide (FOSA)	100	98.9		ng/L		99	73 - 133	3	30
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	100	92.9		ng/L		93	76 - 136	4	30
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	100	92.9		ng/L		93	76 - 136	2	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	93.8	108		ng/L		115	79 - 139	1	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	95.2	89.2		ng/L		94	59 - 175	16	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	96.0	84.5		ng/L		88	75 - 135	17	30
N-ethylperfluorooctane sulfonamide (NEtFOSA)	100	79.3		ng/L		79	78 - 138	23	30
N-methylperfluorooctane sulfonamide (NMeFOSA)	100	98.9		ng/L		99	67 - 154	5	30
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	100	99.0		ng/L		99	70 - 130	6	30
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	100	98.5		ng/L		98	71 - 131	7	30

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QC Sample Results

Client: Hawaii Department of Health
Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-713360/3-A
Matrix: Water
Analysis Batch: 713699

Client Sample ID: Lab Control Sample Dup
Prep Type: Pre-Treatment
Prep Batch: 713360

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	93.4	94.9		ng/L		102	75 - 135	1	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	100	104		ng/L		104	51 - 173	4	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	94.4	87.1		ng/L		92	54 - 114	0	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	94.6	93.5		ng/L		99	79 - 139	1	30
3-Perfluoropentylpropanoic acid (5:3 FTCA)	100	124		ng/L		124	70 - 130	5	30
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	100	112		ng/L		112	70 - 130	1	30
6:2 FTUCA	100	92.7		ng/L		93	70 - 130	2	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	100	116		ng/L		116	70 - 130	7	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	100	98.8		ng/L		99	70 - 130	2	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	100	88.8		ng/L		89	70 - 130	6	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	89.2	95.4		ng/L		107	70 - 130	2	30

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	LCSD Limits
13C8 FOSA	101		25 - 150
13C4 PFBA	92		25 - 150
13C5 PFPeA	97		25 - 150
13C2 PFHxA	96		25 - 150
13C4 PFHpA	93		25 - 150
13C4 PFOA	97		25 - 150
13C5 PFNA	90		25 - 150
13C2 PFDA	98		25 - 150
13C2 PFUnA	99		25 - 150
13C2 PFDoA	97		25 - 150
13C2 PFTeDA	112		25 - 150
13C2 PFHxDA	78		25 - 150
13C3 PFBS	93		25 - 150
18O2 PFHxS	104		25 - 150
13C4 PFOS	93		25 - 150
d5-NEtFOSAA	126		25 - 150
d3-NMeFOSAA	120		25 - 150
M2-4:2 FTS	101		25 - 150
M2-6:2 FTS	121		25 - 150
M2-8:2 FTS	134		25 - 150
d-N-MeFOSA-M	84		25 - 150
d-N-EtFOSA-M	88		25 - 150
d7-N-MeFOSE-M	86		25 - 150
d9-N-EtFOSE-M	82		25 - 150
13C3 HFPO-DA	91		25 - 150
13C-6:2 FTCA	80		25 - 150

QC Sample Results

Client: Hawaii Department of Health
Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-713360/3-A
Matrix: Water
Analysis Batch: 713699

Client Sample ID: Lab Control Sample Dup
Prep Type: Pre-Treatment
Prep Batch: 713360

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
13C-8:2 FTCA	83		25 - 150
13C2 10:2 FTS	119		25 - 150
13C-6:2 FTUCA	129		25 - 150

Lab Sample ID: MB 320-712832/1-A
Matrix: Water
Analysis Batch: 713700

Client Sample ID: Method Blank
Prep Type: Post-Treatment
Prep Batch: 712832

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorobutanoic acid (PFBA)	ND		13		ng/L		10/12/23 17:37	10/17/23 17:05	1
Perfluoropentanoic acid (PFPeA)	ND		5.0		ng/L		10/12/23 17:37	10/17/23 17:05	1
Perfluorohexanoic acid (PFHxA)	ND		5.0		ng/L		10/12/23 17:37	10/17/23 17:05	1
Perfluoroheptanoic acid (PFHpA)	ND		5.0		ng/L		10/12/23 17:37	10/17/23 17:05	1
Perfluorooctanoic acid (PFOA)	ND		5.0		ng/L		10/12/23 17:37	10/17/23 17:05	1
Perfluorononanoic acid (PFNA)	ND		5.0		ng/L		10/12/23 17:37	10/17/23 17:05	1
Perfluorodecanoic acid (PFDA)	ND		5.0		ng/L		10/12/23 17:37	10/17/23 17:05	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0		ng/L		10/12/23 17:37	10/17/23 17:05	1
Perfluorododecanoic acid (PFDoA)	ND		5.0		ng/L		10/12/23 17:37	10/17/23 17:05	1
Perfluorotridecanoic acid (PFTTrDA)	ND		5.0		ng/L		10/12/23 17:37	10/17/23 17:05	1
Perfluorotetradecanoic acid (PFTeA)	ND		5.0		ng/L		10/12/23 17:37	10/17/23 17:05	1
Perfluorobutanesulfonic acid (PFBS)	ND		5.0		ng/L		10/12/23 17:37	10/17/23 17:05	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0		ng/L		10/12/23 17:37	10/17/23 17:05	1
Perfluorohexanesulfonic acid (PFHxS)	ND		5.0		ng/L		10/12/23 17:37	10/17/23 17:05	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.0		ng/L		10/12/23 17:37	10/17/23 17:05	1
Perfluorooctanesulfonic acid (PFOS)	ND		5.0		ng/L		10/12/23 17:37	10/17/23 17:05	1
Perfluorononanesulfonic acid (PFNS)	ND		5.0		ng/L		10/12/23 17:37	10/17/23 17:05	1
Perfluorodecanesulfonic acid (PFDS)	ND		5.0		ng/L		10/12/23 17:37	10/17/23 17:05	1
Perfluorododecanesulfonic acid (PFDoS)	ND		5.0		ng/L		10/12/23 17:37	10/17/23 17:05	1
Perfluorooctanesulfonamide (FOSA)	ND		5.0		ng/L		10/12/23 17:37	10/17/23 17:05	1
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		13		ng/L		10/12/23 17:37	10/17/23 17:05	1
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		13		ng/L		10/12/23 17:37	10/17/23 17:05	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		5.0		ng/L		10/12/23 17:37	10/17/23 17:05	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		13		ng/L		10/12/23 17:37	10/17/23 17:05	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		5.0		ng/L		10/12/23 17:37	10/17/23 17:05	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		5.0		ng/L		10/12/23 17:37	10/17/23 17:05	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		5.0		ng/L		10/12/23 17:37	10/17/23 17:05	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		10		ng/L		10/12/23 17:37	10/17/23 17:05	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		5.0		ng/L		10/12/23 17:37	10/17/23 17:05	1

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QC Sample Results

Client: Hawaii Department of Health
Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-712832/1-A
Matrix: Water
Analysis Batch: 713700

Client Sample ID: Method Blank
Prep Type: Post-Treatment
Prep Batch: 712832

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid (9CI-PF3ONS)	ND		5.0		ng/L		10/12/23 17:37	10/17/23 17:05	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		10		ng/L		10/12/23 17:37	10/17/23 17:05	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11CI-PF3OUdS)	ND		5.0		ng/L		10/12/23 17:37	10/17/23 17:05	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		5.0		ng/L		10/12/23 17:37	10/17/23 17:05	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		5.0		ng/L		10/12/23 17:37	10/17/23 17:05	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		5.0		ng/L		10/12/23 17:37	10/17/23 17:05	1
6:2 FTUCA	ND		5.0		ng/L		10/12/23 17:37	10/17/23 17:05	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		5.0		ng/L		10/12/23 17:37	10/17/23 17:05	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		5.0		ng/L		10/12/23 17:37	10/17/23 17:05	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		5.0		ng/L		10/12/23 17:37	10/17/23 17:05	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	ND		5.0		ng/L		10/12/23 17:37	10/17/23 17:05	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	94		25 - 150	10/12/23 17:37	10/17/23 17:05	1
13C4 PFBA	82		25 - 150	10/12/23 17:37	10/17/23 17:05	1
13C5 PFPeA	97		25 - 150	10/12/23 17:37	10/17/23 17:05	1
13C2 PFHxA	94		25 - 150	10/12/23 17:37	10/17/23 17:05	1
13C4 PFHpA	92		25 - 150	10/12/23 17:37	10/17/23 17:05	1
13C4 PFOA	95		25 - 150	10/12/23 17:37	10/17/23 17:05	1
13C5 PFNA	89		25 - 150	10/12/23 17:37	10/17/23 17:05	1
13C2 PFDA	96		25 - 150	10/12/23 17:37	10/17/23 17:05	1
13C2 PFUnA	100		25 - 150	10/12/23 17:37	10/17/23 17:05	1
13C2 PFDoA	80		25 - 150	10/12/23 17:37	10/17/23 17:05	1
13C2 PFTeDA	111		25 - 150	10/12/23 17:37	10/17/23 17:05	1
13C2 PFHxDA	73		25 - 150	10/12/23 17:37	10/17/23 17:05	1
13C3 PFBS	90		25 - 150	10/12/23 17:37	10/17/23 17:05	1
18O2 PFHxS	99		25 - 150	10/12/23 17:37	10/17/23 17:05	1
13C4 PFOS	86		25 - 150	10/12/23 17:37	10/17/23 17:05	1
d5-NEtFOSAA	120		25 - 150	10/12/23 17:37	10/17/23 17:05	1
d3-NMeFOSAA	111		25 - 150	10/12/23 17:37	10/17/23 17:05	1
M2-4:2 FTS	0		0 - 10	10/12/23 17:37	10/17/23 17:05	1
M2-6:2 FTS	110		25 - 150	10/12/23 17:37	10/17/23 17:05	1
M2-8:2 FTS	117		25 - 150	10/12/23 17:37	10/17/23 17:05	1
d-N-MeFOSA-M	78		25 - 150	10/12/23 17:37	10/17/23 17:05	1
d-N-EtFOSA-M	78		25 - 150	10/12/23 17:37	10/17/23 17:05	1
d7-N-MeFOSE-M	79		25 - 150	10/12/23 17:37	10/17/23 17:05	1
d9-N-EtFOSE-M	71		25 - 150	10/12/23 17:37	10/17/23 17:05	1
13C3 HFPO-DA	92		25 - 150	10/12/23 17:37	10/17/23 17:05	1
13C-6:2 FTCA	78		25 - 150	10/12/23 17:37	10/17/23 17:05	1
13C-8:2 FTCA	76		25 - 150	10/12/23 17:37	10/17/23 17:05	1
13C2 10:2 FTS	125		25 - 150	10/12/23 17:37	10/17/23 17:05	1

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QC Sample Results

Client: Hawaii Department of Health
Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-712832/1-A
Matrix: Water
Analysis Batch: 713700

Client Sample ID: Method Blank
Prep Type: Post-Treatment
Prep Batch: 712832

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-6:2 FTUCA	128		25 - 150	10/12/23 17:37	10/17/23 17:05	1

Lab Sample ID: LCS 320-712832/2-A
Matrix: Water
Analysis Batch: 713700

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 712832

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoropentanoic acid (PFPeA)	100	186	*+	ng/L		186	85 - 145
Perfluorohexanoic acid (PFHxA)	100	197	*+	ng/L		197	81 - 141
Perfluoroheptanoic acid (PFHpA)	100	198	*+	ng/L		198	104 - 171
Perfluorooctanoic acid (PFOA)	100	332		ng/L		332	158 - 454
Perfluorononanoic acid (PFNA)	100	166	*+	ng/L		166	66 - 126
Perfluorodecanoic acid (PFDA)	100	166	*+	ng/L		166	65 - 125
Perfluoroundecanoic acid (PFUnA)	100	108		ng/L		108	57 - 117
Perfluorododecanoic acid (PFDoA)	100	90.7		ng/L		91	66 - 126
Perfluorotridecanoic acid (PFTrDA)	100	82.2		ng/L		82	65 - 136
Perfluorotetradecanoic acid (PFTeA)	100	89.3		ng/L		89	63 - 123
Perfluorobutanesulfonic acid (PFBS)	88.8	101		ng/L		114	75 - 135
Perfluoropentanesulfonic acid (PFPeS)	94.0	101		ng/L		108	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	91.2	95.9		ng/L		105	64 - 124
Perfluoroheptanesulfonic acid (PFHpS)	95.4	105		ng/L		110	70 - 131
Perfluorooctanesulfonic acid (PFOS)	93.0	101		ng/L		109	68 - 128
Perfluorononanesulfonic acid (PFNS)	96.2	111		ng/L		115	70 - 130
Perfluorodecanesulfonic acid (PFDS)	96.4	97.3		ng/L		101	66 - 126
Perfluorododecanesulfonic acid (PFDoS)	97.0	88.2		ng/L		91	67 - 127
Perfluorooctanesulfonamide (FOSA)	100	ND		ng/L		0	0 - 10
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	100	ND		ng/L		0	0 - 10
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	100	ND		ng/L		0	0 - 10
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	93.8	ND		ng/L		0	0 - 10
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	95.2	ND		ng/L		0	0 - 10
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	96.0	ND		ng/L		0	0 - 10
N-ethylperfluorooctane sulfonamide (NEtFOSA)	100	ND		ng/L		0	0 - 10

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QC Sample Results

Client: Hawaii Department of Health
Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-712832/2-A
Matrix: Water
Analysis Batch: 713700

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 712832

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
N-methylperfluorooctane sulfonamide (NMeFOSA)	100	ND		ng/L		0	0 - 10
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	100	ND		ng/L		0	0 - 10
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	100	ND		ng/L		0	0 - 10
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	93.4	92.2		ng/L		99	75 - 135
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	100	83.4		ng/L		83	51 - 173
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	94.4	65.6		ng/L		69	54 - 114
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	94.6	ND		ng/L		0	0 - 10
3-Perfluoropentylpropanoic acid (5:3 FTCA)	100	ND		ng/L		0	0 - 10
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	100	ND		ng/L		0	0 - 10
6:2 FTUCA	100	ND		ng/L		0	0 - 10
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	100	94.1		ng/L		94	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	100	85.9		ng/L		86	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	100	99.2		ng/L		99	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	89.2	98.0		ng/L		110	70 - 130

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C8 FOSA	109		25 - 150
13C4 PFBA	32		25 - 150
13C5 PFPeA	96		25 - 150
13C2 PFHxA	101		25 - 150
13C4 PFHpA	97		25 - 150
13C4 PFOA	101		25 - 150
13C5 PFNA	96		25 - 150
13C2 PFDA	96		25 - 150
13C2 PFUnA	103		25 - 150
13C2 PFDoA	114		25 - 150
13C2 PFTeDA	123		25 - 150
13C2 PFHxDA	99		25 - 150
13C3 PFBS	97		25 - 150
18O2 PFHxS	101		25 - 150
13C4 PFOS	95		25 - 150
d5-NEtFOSAA	118		25 - 150
d3-NMeFOSAA	128		25 - 150
M2-4:2 FTS	0		0 - 10
M2-6:2 FTS	102		25 - 150
M2-8:2 FTS	118		25 - 150
d-N-MeFOSA-M	102		25 - 150

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QC Sample Results

Client: Hawaii Department of Health
Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-712832/2-A
Matrix: Water
Analysis Batch: 713700

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 712832

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
d-N-EtFOSA-M	95		25 - 150
d7-N-MeFOSE-M	83		25 - 150
d9-N-EtFOSE-M	86		25 - 150
13C3 HFPO-DA	94		25 - 150
13C-6:2 FTCA	82		25 - 150
13C-8:2 FTCA	87		25 - 150
13C2 10:2 FTS	120		25 - 150
13C-6:2 FTUCA	131		25 - 150

Lab Sample ID: LCSD 320-712832/3-A
Matrix: Water
Analysis Batch: 713700

Client Sample ID: Lab Control Sample Dup
Prep Type: Post-Treatment
Prep Batch: 712832

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	
							Limits	RPD	Limit	
Perfluorobutanoic acid (PFBA)	100	193	*+	ng/L		193	93 - 153	5	30	
Perfluoropentanoic acid (PFPeA)	100	176	*+	ng/L		176	85 - 145	6	30	
Perfluorohexanoic acid (PFHxA)	100	178	*+	ng/L		178	81 - 141	10	30	
Perfluoroheptanoic acid (PFHpA)	100	203	*+	ng/L		203	104 - 171	2	30	
Perfluorooctanoic acid (PFOA)	100	343		ng/L		343	158 - 454	3	30	
Perfluorononanoic acid (PFNA)	100	162	*+	ng/L		162	66 - 126	2	30	
Perfluorodecanoic acid (PFDA)	100	138	*+	ng/L		138	65 - 125	19	30	
Perfluoroundecanoic acid (PFUnA)	100	104		ng/L		104	57 - 117	4	30	
Perfluorododecanoic acid (PFDoA)	100	92.4		ng/L		92	66 - 126	2	30	
Perfluorotridecanoic acid (PFTrDA)	100	103		ng/L		103	65 - 136	22	30	
Perfluorotetradecanoic acid (PFTeA)	100	95.1		ng/L		95	63 - 123	6	30	
Perfluorobutanesulfonic acid (PFBS)	88.8	103		ng/L		116	75 - 135	2	30	
Perfluoropentanesulfonic acid (PFPeS)	94.0	104		ng/L		110	70 - 130	2	30	
Perfluorohexanesulfonic acid (PFHxS)	91.2	92.8		ng/L		102	64 - 124	3	30	
Perfluoroheptanesulfonic acid (PFHpS)	95.4	102		ng/L		107	70 - 131	3	30	
Perfluorooctanesulfonic acid (PFOS)	93.0	101		ng/L		108	68 - 128	0	30	
Perfluorononanesulfonic acid (PFNS)	96.2	106		ng/L		110	70 - 130	5	30	
Perfluorodecanesulfonic acid (PFDS)	96.4	103		ng/L		107	66 - 126	6	30	
Perfluorododecanesulfonic acid (PFDoS)	97.0	93.1		ng/L		96	67 - 127	5	30	
Perfluorooctanesulfonamide (FOSA)	100	ND		ng/L		0	0 - 10	NC	30	
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	100	ND		ng/L		0	0 - 10	NC	30	
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	100	ND		ng/L		0	0 - 10	NC	30	

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QC Sample Results

Client: Hawaii Department of Health
Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-712832/3-A
Matrix: Water
Analysis Batch: 713700

Client Sample ID: Lab Control Sample Dup
Prep Type: Post-Treatment
Prep Batch: 712832

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	93.8	ND		ng/L		0	0 - 10	NC	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	95.2	ND		ng/L		0	0 - 10	NC	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	96.0	ND		ng/L		0	0 - 10	NC	30
N-ethylperfluorooctane sulfonamide (NEtFOSA)	100	ND		ng/L		0	0 - 10	NC	30
N-methylperfluorooctane sulfonamide (NMeFOSA)	100	ND		ng/L		0	0 - 10	NC	30
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	100	ND		ng/L		0	0 - 10	NC	30
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	100	ND		ng/L		0	0 - 10	NC	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	93.4	87.5		ng/L		94	75 - 135	5	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	100	80.7		ng/L		81	51 - 173	3	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	94.4	60.8		ng/L		64	54 - 114	8	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	94.6	ND		ng/L		0	0 - 10	NC	30
3-Perfluoropentylpropanoic acid (5:3 FTCA)	100	ND		ng/L		0	0 - 10	NC	30
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	100	ND		ng/L		0	0 - 10	NC	30
6:2 FTUCA	100	ND		ng/L		0	0 - 10	NC	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	100	95.8		ng/L		96	70 - 130	2	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	100	77.8		ng/L		78	70 - 130	10	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	100	121		ng/L		121	70 - 130	20	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	89.2	102		ng/L		114	70 - 130	4	30

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
13C8 FOSA	105		25 - 150
13C4 PFBA	82		25 - 150
13C5 PFPeA	102		25 - 150
13C2 PFHxA	103		25 - 150
13C4 PFHpA	98		25 - 150
13C4 PFOA	98		25 - 150
13C5 PFNA	94		25 - 150
13C2 PFDA	106		25 - 150
13C2 PFUnA	106		25 - 150
13C2 PFDoA	108		25 - 150
13C2 PFTeDA	113		25 - 150
13C2 PFHxDA	92		25 - 150
13C3 PFBS	92		25 - 150
18O2 PFHxS	101		25 - 150

QC Sample Results

Client: Hawaii Department of Health
Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-712832/3-A
Matrix: Water
Analysis Batch: 713700

Client Sample ID: Lab Control Sample Dup
Prep Type: Post-Treatment
Prep Batch: 712832

Isotope Dilution	LCSD LCSD		Limits
	%Recovery	Qualifier	
13C4 PFOS	94		25 - 150
d5-NEtFOSAA	121		25 - 150
d3-NMeFOSAA	115		25 - 150
M2-4:2 FTS	0		0 - 10
M2-6:2 FTS	118		25 - 150
M2-8:2 FTS	119		25 - 150
d-N-MeFOSA-M	90		25 - 150
d-N-EtFOSA-M	91		25 - 150
d7-N-MeFOSE-M	86		25 - 150
d9-N-EtFOSE-M	83		25 - 150
13C3 HFPO-DA	100		25 - 150
13C-6:2 FTCA	75		25 - 150
13C-8:2 FTCA	85		25 - 150
13C2 10:2 FTS	126		25 - 150
13C-6:2 FTUCA	131		25 - 150

Method: 537 (modified) - Fluorinated Alkyl Substances - RA

Lab Sample ID: MB 320-713360/1-A
Matrix: Water
Analysis Batch: 715554

Client Sample ID: Method Blank
Prep Type: Pre-Treatment
Prep Batch: 713360

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
3-Perfluoropropylpropanoic acid (3:3 FTCA) - RA	ND		5.0		ng/L		10/15/23 19:30	10/23/23 20:01	1

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C3 PFBS - RA	85		25 - 150	10/15/23 19:30	10/23/23 20:01	1

Lab Sample ID: LCS 320-713360/2-A
Matrix: Water
Analysis Batch: 715554

Client Sample ID: Lab Control Sample
Prep Type: Pre-Treatment
Prep Batch: 713360

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C3 PFBS - RA	87		25 - 150

Lab Sample ID: LCSD 320-713360/3-A
Matrix: Water
Analysis Batch: 715554

Client Sample ID: Lab Control Sample Dup
Prep Type: Pre-Treatment
Prep Batch: 713360

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit

Isotope Dilution	LCSD LCSD		Limits
	%Recovery	Qualifier	
13C3 PFBS - RA	87		25 - 150

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QC Sample Results

Client: Hawaii Department of Health
Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Method: 537 (modified) - Fluorinated Alkyl Substances - RA (Continued)

Lab Sample ID: MB 320-712832/1-A
Matrix: Water
Analysis Batch: 715554

Client Sample ID: Method Blank
Prep Type: Post-Treatment
Prep Batch: 712832

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid (3:3 FTCA) - RA	ND		5.0		ng/L		10/12/23 17:37	10/23/23 18:10	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C3 PFBS - RA	87		25 - 150				10/12/23 17:37	10/23/23 18:10	1

Lab Sample ID: LCS 320-712832/2-A
Matrix: Water
Analysis Batch: 715554

Client Sample ID: Lab Control Sample
Prep Type: Post-Treatment
Prep Batch: 712832

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
3-Perfluoropropylpropanoic acid (3:3 FTCA) - RA	100	ND		ng/L		0	0 - 10
6:2 FTUCA - RA	100	ND		ng/L		0	0 - 10
Isotope Dilution	%Recovery	Qualifier	Limits				
13C3 PFBS - RA	91		25 - 150				

Lab Sample ID: LCSD 320-712832/3-A
Matrix: Water
Analysis Batch: 715554

Client Sample ID: Lab Control Sample Dup
Prep Type: Post-Treatment
Prep Batch: 712832

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
3-Perfluoropropylpropanoic acid (3:3 FTCA) - RA	100	ND		ng/L		0	0 - 10	NC	30
Isotope Dilution	%Recovery	Qualifier	Limits						
13C3 PFBS - RA	94		25 - 150						

Method: ELLE SOP - Total or Organic Fluorine by Combustion Ion Chromatography

Lab Sample ID: MB 410-439933/1-A
Matrix: Water
Analysis Batch: 441118

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 439933

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Adsorbable Organic Fluorine (AOF)	ND		2.0		ug/L		11/06/23 10:01	11/07/23 13:38	1

Lab Sample ID: LCS 410-439933/2-A
Matrix: Water
Analysis Batch: 441118

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 439933

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Adsorbable Organic Fluorine (AOF)	20.5	21.0		ug/L		103	50 - 150

QC Sample Results

Client: Hawaii Department of Health
Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Method: ELLE SOP - Total or Organic Fluorine by Combustion Ion Chromatography (Continued)

Lab Sample ID: LCSD 410-439933/3-A
Matrix: Water
Analysis Batch: 441118

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 439933

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Adsorbable Organic Fluorine (AOF)	20.5	21.6		ug/L		106	50 - 150	3	20

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

QC Association Summary

Client: Hawaii Department of Health
Project/Site: Wastewater Treatment

Job ID: 320-105614-1

LCMS

Prep Batch: 439933

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105614-1	LAWWTP-EFFL	Total/NA	Water	NONE	
320-105614-2	SIWWTP-EFFL	Total/NA	Water	NONE	
320-105614-3	HNWWTP-EFFL	Total/NA	Water	NONE	
MB 410-439933/1-A	Method Blank	Total/NA	Water	NONE	
LCS 410-439933/2-A	Lab Control Sample	Total/NA	Water	NONE	
LCSD 410-439933/3-A	Lab Control Sample Dup	Total/NA	Water	NONE	

Analysis Batch: 441118

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105614-1	LAWWTP-EFFL	Total/NA	Water	ELLE SOP	439933
320-105614-2	SIWWTP-EFFL	Total/NA	Water	ELLE SOP	439933
320-105614-3	HNWWTP-EFFL	Total/NA	Water	ELLE SOP	439933
MB 410-439933/1-A	Method Blank	Total/NA	Water	ELLE SOP	439933
LCS 410-439933/2-A	Lab Control Sample	Total/NA	Water	ELLE SOP	439933
LCSD 410-439933/3-A	Lab Control Sample Dup	Total/NA	Water	ELLE SOP	439933

Prep Batch: 712832

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105614-1 - RA	LAWWTP-EFFL	Post-Treatment	Water	TOP Post Prep	
320-105614-1	LAWWTP-EFFL	Post-Treatment	Water	TOP Post Prep	
320-105614-2	SIWWTP-EFFL	Post-Treatment	Water	TOP Post Prep	
320-105614-2 - RA	SIWWTP-EFFL	Post-Treatment	Water	TOP Post Prep	
320-105614-3 - RA	HNWWTP-EFFL	Post-Treatment	Water	TOP Post Prep	
320-105614-3	HNWWTP-EFFL	Post-Treatment	Water	TOP Post Prep	
MB 320-712832/1-A - RA	Method Blank	Post-Treatment	Water	TOP Post Prep	
MB 320-712832/1-A	Method Blank	Post-Treatment	Water	TOP Post Prep	
LCS 320-712832/2-A	Lab Control Sample	Post-Treatment	Water	TOP Post Prep	
LCS 320-712832/2-A - RA	Lab Control Sample	Post-Treatment	Water	TOP Post Prep	
LCSD 320-712832/3-A	Lab Control Sample Dup	Post-Treatment	Water	TOP Post Prep	
LCSD 320-712832/3-A - RA	Lab Control Sample Dup	Post-Treatment	Water	TOP Post Prep	

Prep Batch: 713360

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105614-1	LAWWTP-EFFL	Pre-Treatment	Water	TOP Pre - Prep	
320-105614-1 - RA	LAWWTP-EFFL	Pre-Treatment	Water	TOP Pre - Prep	
320-105614-2	SIWWTP-EFFL	Pre-Treatment	Water	TOP Pre - Prep	
320-105614-2 - RA	SIWWTP-EFFL	Pre-Treatment	Water	TOP Pre - Prep	
320-105614-3 - RA	HNWWTP-EFFL	Pre-Treatment	Water	TOP Pre - Prep	
320-105614-3	HNWWTP-EFFL	Pre-Treatment	Water	TOP Pre - Prep	
MB 320-713360/1-A - RA	Method Blank	Pre-Treatment	Water	TOP Pre - Prep	
MB 320-713360/1-A	Method Blank	Pre-Treatment	Water	TOP Pre - Prep	
LCS 320-713360/2-A	Lab Control Sample	Pre-Treatment	Water	TOP Pre - Prep	
LCS 320-713360/2-A - RA	Lab Control Sample	Pre-Treatment	Water	TOP Pre - Prep	
LCSD 320-713360/3-A - RA	Lab Control Sample Dup	Pre-Treatment	Water	TOP Pre - Prep	
LCSD 320-713360/3-A	Lab Control Sample Dup	Pre-Treatment	Water	TOP Pre - Prep	

Analysis Batch: 713699

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105614-1	LAWWTP-EFFL	Pre-Treatment	Water	537 (modified)	713360
320-105614-2	SIWWTP-EFFL	Pre-Treatment	Water	537 (modified)	713360
320-105614-3	HNWWTP-EFFL	Pre-Treatment	Water	537 (modified)	713360

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QC Association Summary

Client: Hawaii Department of Health
Project/Site: Wastewater Treatment

Job ID: 320-105614-1

LCMS (Continued)

Analysis Batch: 713699 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 320-713360/1-A	Method Blank	Pre-Treatment	Water	537 (modified)	713360
LCS 320-713360/2-A	Lab Control Sample	Pre-Treatment	Water	537 (modified)	713360
LCSD 320-713360/3-A	Lab Control Sample Dup	Pre-Treatment	Water	537 (modified)	713360

Analysis Batch: 713700

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105614-1	LAWWTP-EFFL	Post-Treatment	Water	537 (modified)	712832
320-105614-2	SIWWTP-EFFL	Post-Treatment	Water	537 (modified)	712832
320-105614-3	HNWWTP-EFFL	Post-Treatment	Water	537 (modified)	712832
MB 320-712832/1-A	Method Blank	Post-Treatment	Water	537 (modified)	712832
LCS 320-712832/2-A	Lab Control Sample	Post-Treatment	Water	537 (modified)	712832
LCSD 320-712832/3-A	Lab Control Sample Dup	Post-Treatment	Water	537 (modified)	712832

Analysis Batch: 715554

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105614-1 - RA	LAWWTP-EFFL	Post-Treatment	Water	537 (modified)	712832
320-105614-1 - RA	LAWWTP-EFFL	Pre-Treatment	Water	537 (modified)	713360
320-105614-2 - RA	SIWWTP-EFFL	Post-Treatment	Water	537 (modified)	712832
320-105614-2 - RA	SIWWTP-EFFL	Pre-Treatment	Water	537 (modified)	713360
320-105614-3 - RA	HNWWTP-EFFL	Post-Treatment	Water	537 (modified)	712832
320-105614-3 - RA	HNWWTP-EFFL	Pre-Treatment	Water	537 (modified)	713360
MB 320-712832/1-A - RA	Method Blank	Post-Treatment	Water	537 (modified)	712832
MB 320-713360/1-A - RA	Method Blank	Pre-Treatment	Water	537 (modified)	713360
LCS 320-712832/2-A - RA	Lab Control Sample	Post-Treatment	Water	537 (modified)	712832
LCS 320-713360/2-A - RA	Lab Control Sample	Pre-Treatment	Water	537 (modified)	713360
LCSD 320-712832/3-A - RA	Lab Control Sample Dup	Post-Treatment	Water	537 (modified)	712832
LCSD 320-713360/3-A - RA	Lab Control Sample Dup	Pre-Treatment	Water	537 (modified)	713360

Analysis Batch: 717325

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105614-1	LAWWTP-EFFL	Pre-Treatment	Water	Total PFCA-Sum	
320-105614-2	SIWWTP-EFFL	Pre-Treatment	Water	Total PFCA-Sum	
320-105614-3	HNWWTP-EFFL	Pre-Treatment	Water	Total PFCA-Sum	

Analysis Batch: 717326

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105614-1	LAWWTP-EFFL	Post-Treatment	Water	Total PFCA-Sum	
320-105614-2	SIWWTP-EFFL	Post-Treatment	Water	Total PFCA-Sum	
320-105614-3	HNWWTP-EFFL	Post-Treatment	Water	Total PFCA-Sum	

Analysis Batch: 717327

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105614-1	LAWWTP-EFFL	Total/NA	Water	Total PFCA-Dif	
320-105614-2	SIWWTP-EFFL	Total/NA	Water	Total PFCA-Dif	
320-105614-3	HNWWTP-EFFL	Total/NA	Water	Total PFCA-Dif	

Lab Chronicle

Client: Hawaii Department of Health
Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Client Sample ID: LAWWTP-EFFL

Lab Sample ID: 320-105614-1

Date Collected: 09/26/23 09:00

Matrix: Water

Date Received: 10/04/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Post-Treatment	Prep	TOP Post Prep			100.0 mL	10.0 mL	712832	10/12/23 17:37	FX	EET SAC
Post-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	713700	10/17/23 18:12	D1R	EET SAC
Post-Treatment	Prep	TOP Post Prep	RA		100.0 mL	10.0 mL	712832	10/12/23 17:37	FX	EET SAC
Post-Treatment	Analysis	537 (modified)	RA	1	1 mL	1 mL	715554	10/23/23 19:17	RS1	EET SAC
Pre-Treatment	Prep	TOP Pre - Prep			100.0 mL	10.0 mL	713360	10/15/23 19:30	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	713699	10/17/23 16:09	D1R	EET SAC
Pre-Treatment	Prep	TOP Pre - Prep	RA		100.0 mL	10.0 mL	713360	10/15/23 19:30	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)	RA	1	1 mL	1 mL	715554	10/23/23 20:57	RS1	EET SAC
Total/NA	Prep	NONE			5 mL	0.2 mL	439933	11/06/23 10:01	QLP7	ELLE
Total/NA	Analysis	ELLE SOP		1			441118	11/07/23 16:55	F9DU	ELLE
Total/NA	Analysis	Total PFCA-Dif		1			717327	11/01/23 15:42	MKW	EET SAC
Post-Treatment	Analysis	Total PFCA-Sum		1			717326	10/17/23 18:12	MKW	EET SAC
Pre-Treatment	Analysis	Total PFCA-Sum		1			717325	10/17/23 16:09	MKW	EET SAC

Client Sample ID: SIWWTP-EFFL

Lab Sample ID: 320-105614-2

Date Collected: 09/19/23 08:31

Matrix: Water

Date Received: 10/04/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Post-Treatment	Prep	TOP Post Prep			100.0 mL	10.0 mL	712832	10/12/23 17:37	FX	EET SAC
Post-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	713700	10/17/23 18:23	D1R	EET SAC
Post-Treatment	Prep	TOP Post Prep	RA		100.0 mL	10.0 mL	712832	10/12/23 17:37	FX	EET SAC
Post-Treatment	Analysis	537 (modified)	RA	1	1 mL	1 mL	715554	10/23/23 19:28	RS1	EET SAC
Pre-Treatment	Prep	TOP Pre - Prep			100.0 mL	10.0 mL	713360	10/15/23 19:30	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	713699	10/17/23 16:21	D1R	EET SAC
Pre-Treatment	Prep	TOP Pre - Prep	RA		100.0 mL	10.0 mL	713360	10/15/23 19:30	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)	RA	1	1 mL	1 mL	715554	10/23/23 21:08	RS1	EET SAC
Total/NA	Prep	NONE			5 mL	0.2 mL	439933	11/06/23 10:01	QLP7	ELLE
Total/NA	Analysis	ELLE SOP		1			441118	11/07/23 18:01	F9DU	ELLE
Total/NA	Analysis	Total PFCA-Dif		1			717327	11/01/23 15:42	MKW	EET SAC
Post-Treatment	Analysis	Total PFCA-Sum		1			717326	10/17/23 18:23	MKW	EET SAC
Pre-Treatment	Analysis	Total PFCA-Sum		1			717325	10/17/23 16:21	MKW	EET SAC

Client Sample ID: HNWTP-EFFL

Lab Sample ID: 320-105614-3

Date Collected: 09/19/23 07:40

Matrix: Water

Date Received: 10/04/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Post-Treatment	Prep	TOP Post Prep			100.0 mL	10.0 mL	712832	10/12/23 17:37	FX	EET SAC
Post-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	713700	10/17/23 18:34	D1R	EET SAC
Post-Treatment	Prep	TOP Post Prep	RA		100.0 mL	10.0 mL	712832	10/12/23 17:37	FX	EET SAC
Post-Treatment	Analysis	537 (modified)	RA	1	1 mL	1 mL	715554	10/23/23 19:39	RS1	EET SAC
Pre-Treatment	Prep	TOP Pre - Prep			100.0 mL	10.0 mL	713360	10/15/23 19:30	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	713699	10/17/23 16:32	D1R	EET SAC

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Lab Chronicle

Client: Hawaii Department of Health
Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Client Sample ID: HNWWTP-EFFL

Lab Sample ID: 320-105614-3

Date Collected: 09/19/23 07:40

Matrix: Water

Date Received: 10/04/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Pre-Treatment	Prep	TOP Pre - Prep	RA		100.0 mL	10.0 mL	713360	10/15/23 19:30	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)	RA	1	1 mL	1 mL	715554	10/23/23 21:19	RS1	EET SAC
Total/NA	Prep	NONE			5 mL	0.2 mL	439933	11/06/23 10:01	QLP7	ELLE
Total/NA	Analysis	ELLE SOP		1			441118	11/07/23 19:06	F9DU	ELLE
Total/NA	Analysis	Total PFCA-Dif		1			717327	11/01/23 15:42	MKW	EET SAC
Post-Treatment	Analysis	Total PFCA-Sum		1			717326	10/17/23 18:34	MKW	EET SAC
Pre-Treatment	Analysis	Total PFCA-Sum		1			717325	10/17/23 16:32	MKW	EET SAC

Laboratory References:

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

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300



Accreditation/Certification Summary

Client: Hawaii Department of Health
 Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Laboratory: Eurofins Sacramento

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

Authority	Program	Identification Number	Expiration Date
Hawaii	State	<cert No.>	01-29-24
<p>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.</p>			
Analysis Method	Prep Method	Matrix	Analyte
537 (modified)	TOP Post Prep	Water	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)
537 (modified)	TOP Post Prep	Water	1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)
537 (modified)	TOP Post Prep	Water	1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)
537 (modified)	TOP Post Prep	Water	1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)
537 (modified)	TOP Post Prep	Water	3-Perfluoroheptylpropanoic acid (7:3 FTCA)
537 (modified)	TOP Post Prep	Water	3-Perfluoropentylpropanoic acid (5:3 FTCA)
537 (modified)	TOP Post Prep	Water	3-Perfluoropropylpropanoic acid (3:3 FTCA)
537 (modified)	TOP Post Prep	Water	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)
537 (modified)	TOP Post Prep	Water	6:2 FTUCA
537 (modified)	TOP Post Prep	Water	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)
537 (modified)	TOP Post Prep	Water	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)
537 (modified)	TOP Post Prep	Water	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)
537 (modified)	TOP Post Prep	Water	N-ethylperfluorooctane sulfonamide (NEtFOSA)
537 (modified)	TOP Post Prep	Water	N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)
537 (modified)	TOP Post Prep	Water	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)
537 (modified)	TOP Post Prep	Water	N-methylperfluorooctane sulfonamide (NMeFOSA)
537 (modified)	TOP Post Prep	Water	N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)
537 (modified)	TOP Post Prep	Water	Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)
537 (modified)	TOP Post Prep	Water	Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)
537 (modified)	TOP Post Prep	Water	Perfluoro-3-methoxypropanoic acid (PFMPA)
537 (modified)	TOP Post Prep	Water	Perfluoro-4-methoxybutanoic acid (PFMBA)
537 (modified)	TOP Post Prep	Water	Perfluorobutanesulfonic acid (PFBS)
537 (modified)	TOP Post Prep	Water	Perfluorobutanoic acid (PFBA)
537 (modified)	TOP Post Prep	Water	Perfluorodecanesulfonic acid (PFDS)
537 (modified)	TOP Post Prep	Water	Perfluorodecanoic acid (PFDA)
537 (modified)	TOP Post Prep	Water	Perfluorododecanesulfonic acid (PFDoS)
537 (modified)	TOP Post Prep	Water	Perfluorododecanoic acid (PFDoA)
537 (modified)	TOP Post Prep	Water	Perfluoroheptanesulfonic acid (PFHpS)
537 (modified)	TOP Post Prep	Water	Perfluoroheptanoic acid (PFHpA)
537 (modified)	TOP Post Prep	Water	Perfluorohexanesulfonic acid (PFHxS)

Accreditation/Certification Summary

Client: Hawaii Department of Health
 Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Laboratory: Eurofins Sacramento (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
537 (modified)	TOP Post Prep	Water	Perfluorohexanoic acid (PFHxA)
537 (modified)	TOP Post Prep	Water	Perfluorononanesulfonic acid (PFNS)
537 (modified)	TOP Post Prep	Water	Perfluorononanoic acid (PFNA)
537 (modified)	TOP Post Prep	Water	Perfluorooctanesulfonamide (FOSA)
537 (modified)	TOP Post Prep	Water	Perfluorooctanesulfonic acid (PFOS)
537 (modified)	TOP Post Prep	Water	Perfluorooctanoic acid (PFOA)
537 (modified)	TOP Post Prep	Water	Perfluoropentanesulfonic acid (PFPeS)
537 (modified)	TOP Post Prep	Water	Perfluoropentanoic acid (PFPeA)
537 (modified)	TOP Post Prep	Water	Perfluorotetradecanoic acid (PFTeA)
537 (modified)	TOP Post Prep	Water	Perfluorotridecanoic acid (PFTrDA)
537 (modified)	TOP Post Prep	Water	Perfluoroundecanoic acid (PFUnA)
537 (modified)	TOP Pre - Prep	Water	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)
537 (modified)	TOP Pre - Prep	Water	1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)
537 (modified)	TOP Pre - Prep	Water	1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)
537 (modified)	TOP Pre - Prep	Water	1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)
537 (modified)	TOP Pre - Prep	Water	3-Perfluoroheptylpropanoic acid (7:3 FTCA)
537 (modified)	TOP Pre - Prep	Water	3-Perfluoropentylpropanoic acid (5:3 FTCA)
537 (modified)	TOP Pre - Prep	Water	3-Perfluoropropylpropanoic acid (3:3 FTCA)
537 (modified)	TOP Pre - Prep	Water	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)
537 (modified)	TOP Pre - Prep	Water	6:2 FTUCA
537 (modified)	TOP Pre - Prep	Water	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)
537 (modified)	TOP Pre - Prep	Water	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)
537 (modified)	TOP Pre - Prep	Water	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)
537 (modified)	TOP Pre - Prep	Water	N-ethylperfluorooctane sulfonamide (NEtFOSA)
537 (modified)	TOP Pre - Prep	Water	N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)
537 (modified)	TOP Pre - Prep	Water	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)
537 (modified)	TOP Pre - Prep	Water	N-methylperfluorooctane sulfonamide (NMeFOSA)
537 (modified)	TOP Pre - Prep	Water	N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)
537 (modified)	TOP Pre - Prep	Water	Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)
537 (modified)	TOP Pre - Prep	Water	Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)
537 (modified)	TOP Pre - Prep	Water	Perfluoro-3-methoxypropanoic acid (PFMPA)

Accreditation/Certification Summary

Client: Hawaii Department of Health
Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Laboratory: Eurofins Sacramento (Continued)

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

Authority	Program	Identification Number	Expiration Date
The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.			
Analysis Method	Prep Method	Matrix	Analyte
537 (modified)	TOP Pre - Prep	Water	Perfluoro-4-methoxybutanoic acid (PFMBA)
537 (modified)	TOP Pre - Prep	Water	Perfluorobutanesulfonic acid (PFBS)
537 (modified)	TOP Pre - Prep	Water	Perfluorobutanoic acid (PFBA)
537 (modified)	TOP Pre - Prep	Water	Perfluorodecanesulfonic acid (PFDS)
537 (modified)	TOP Pre - Prep	Water	Perfluorodecanoic acid (PFDA)
537 (modified)	TOP Pre - Prep	Water	Perfluorododecanesulfonic acid (PFDoS)
537 (modified)	TOP Pre - Prep	Water	Perfluorododecanoic acid (PFDoA)
537 (modified)	TOP Pre - Prep	Water	Perfluoroheptanesulfonic acid (PFHpS)
537 (modified)	TOP Pre - Prep	Water	Perfluoroheptanoic acid (PFHpA)
537 (modified)	TOP Pre - Prep	Water	Perfluorohexanesulfonic acid (PFHxS)
537 (modified)	TOP Pre - Prep	Water	Perfluorohexanoic acid (PFHxA)
537 (modified)	TOP Pre - Prep	Water	Perfluorononanesulfonic acid (PFNS)
537 (modified)	TOP Pre - Prep	Water	Perfluorononanoic acid (PFNA)
537 (modified)	TOP Pre - Prep	Water	Perfluorooctanesulfonamide (FOSA)
537 (modified)	TOP Pre - Prep	Water	Perfluorooctanesulfonic acid (PFOS)
537 (modified)	TOP Pre - Prep	Water	Perfluorooctanoic acid (PFOA)
537 (modified)	TOP Pre - Prep	Water	Perfluoropentanesulfonic acid (PFPeS)
537 (modified)	TOP Pre - Prep	Water	Perfluoropentanoic acid (PFPeA)
537 (modified)	TOP Pre - Prep	Water	Perfluorotetradecanoic acid (PFTeA)
537 (modified)	TOP Pre - Prep	Water	Perfluorotridecanoic acid (PFTrDA)
537 (modified)	TOP Pre - Prep	Water	Perfluoroundecanoic acid (PFUnA)
Total PFCA-Dif		Water	PFBA
Total PFCA-Dif		Water	PFHpA
Total PFCA-Dif		Water	PFHxA
Total PFCA-Dif		Water	PFNA
Total PFCA-Dif		Water	PFOA
Total PFCA-Dif		Water	PFPA
Total PFCA-Dif		Water	Total PFCA
Total PFCA-Sum		Water	Total PFCA

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

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

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	0001.01	11-30-24
A2LA	ISO/IEC 17025	0001.01	11-30-24
Alabama	State	43200	01-31-24
Alaska	State	PA00009	06-30-24
Alaska (UST)	State	17-027	02-28-24
Arizona	State	AZ0780	03-12-24
Arkansas DEQ	State	88-00660	08-09-24
California	State	2792	01-31-24
Colorado	State	PA00009	06-30-24
Connecticut	State	PH-0746	06-30-25
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-24
Delaware (DW)	State	N/A	01-31-24

Accreditation/Certification Summary

Client: Hawaii Department of Health
 Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC (Continued)

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

Authority	Program	Identification Number	Expiration Date
Florida	NELAP	E87997	06-30-24
Georgia (DW)	State	C048	01-31-24
Hawaii	State	N/A	01-31-24
Illinois	NELAP	200027	01-31-24
Iowa	State	361	03-01-24
Kansas	NELAP	E-10151	10-31-24
Kentucky (DW)	State	KY90088	12-31-23
Kentucky (UST)	State	0001.01	11-30-24
Kentucky (WW)	State	KY90088	12-31-23
Louisiana (All)	NELAP	02055	06-30-24
Maine	State	2019012	03-12-25
Maryland	State	100	06-30-24
Massachusetts	State	M-PA009	06-30-24
Michigan	State	9930	01-31-24
Minnesota	NELAP	042-999-487	12-31-23
Mississippi	State	023	01-31-24
Missouri	State	450	01-31-25
Montana (DW)	State	0098	01-01-24
Nebraska	State	NE-OS-32-17	01-31-24
New Hampshire	NELAP	2730	01-10-24
New Jersey	NELAP	PA011	06-30-24
New York	NELAP	10670	04-01-24
North Carolina (DW)	State	42705	07-31-24
North Carolina (WW/SW)	State	521	12-31-23
North Dakota	State	R-205	01-31-24
Oklahoma	NELAP	9804	08-31-24
Oregon	NELAP	PA200001	09-11-24
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-24
Rhode Island	State	LAO00338	12-31-23
South Carolina	State	89002	01-31-24
Tennessee	State	02838	01-31-24
Texas	NELAP	T104704194-23-46	08-31-24
USDA	US Federal Programs	525-22-298-19481	10-25-25
Vermont	State	VT - 36037	10-28-24
Virginia	NELAP	460182	06-14-25
Washington	State	C457	04-11-24
West Virginia (DW)	State	9906 C	12-31-23
West Virginia DEP	State	055	07-31-24
Wyoming	State	8TMS-L	01-31-24
Wyoming (UST)	A2LA	0001.01	11-30-24

Method Summary

Client: Hawaii Department of Health
Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	EET SAC
ELLE SOP	Total or Organic Fluorine by Combustion Ion Chromatography	ELLE - Lancaster	ELLE
Total PFCA-Dif	Total PFCA (Treatment Difference)	TAL SOP	EET SAC
Total PFCA-Sum	Total PFCA (Summary)	TAL SOP	EET SAC
NONE	Preparation, Fluorine	ELLE - Lancaster	ELLE
TOP Post Prep	Solid-Phase Extraction (SPE)	SW846	EET SAC
TOP Pre - Prep	Solid-Phase Extraction (SPE)	SW846	EET SAC

Protocol References:

ELLE - Lancaster = Eurofins Lancaster, Facility Standard Operating Procedure.

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

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

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Hawaii Department of Health
Project/Site: Wastewater Treatment

Job ID: 320-105614-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-105614-1	LAWWTP-EFFL	Water	09/26/23 09:00	10/04/23 09:30
320-105614-2	SIWWTP-EFFL	Water	09/19/23 08:31	10/04/23 09:30
320-105614-3	HNWWTP-EFFL	Water	09/19/23 07:40	10/04/23 09:30

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Environment Testing

Sacramento
Sample Receiving Notes

Loc: 320
105614

Tracking #: 7845 7574 2010

Job: _____

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

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

Therm. ID: <u>W2</u> Corr. Factor: (+/-) _____ °C	Notes: <u>timer</u> <u>① timer 0900-0845</u> <u>② timer 0831-0739</u> <u>③ timer 0740-0755</u> <u>brkr</u> <u>① 9/15 - 26/23</u> <u>② 9/14 - 15/23</u> <u>③ 9/18 - 19/23</u>																																																															
Ice <input checked="" type="checkbox"/> Wet _____ Gel _____ Other _____																																																																
Cooler Custody Seal: _____																																																																
Cooler ID: _____																																																																
Temp Observed: <u>3.6</u> °C Corrected: <u>3.6</u> °C From: Temp Blank <input checked="" type="checkbox"/> Sample <input type="checkbox"/>																																																																
<table border="0"> <tr> <td>Opening/Processing The Shipment</td> <td>Yes</td> <td>No</td> <td>NA</td> </tr> <tr> <td>Cooler compromised/tampered with?</td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Cooler Temperature is acceptable?</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Frozen samples show signs of thaw?</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> </table>		Opening/Processing The Shipment	Yes	No	NA	Cooler compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Cooler Temperature is acceptable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Frozen samples show signs of thaw?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>																																															
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<table border="0"> <tr> <td>Unpacking/Labeling The Samples</td> <td>Yes</td> <td>No</td> <td>NA</td> </tr> <tr> <td>Containers are not broken or leaking?</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Samples compromised/tampered with?</td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>COC is complete w/o discrepancies</td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Sample custody seal?</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>Sample containers have legible labels?</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Sample date/times are provided?</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Appropriate containers are used?</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Sample bottles are completely filled?</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Sample preservatives verified?</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>Is the Field Sampler's name on COC?</td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Samples w/o discrepancies?</td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Zero headspace?*</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>Alkalinity has no headspace?</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>Perchlorate has headspace? (Methods 314, 331, 6850)</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>Multiphasic samples are not present?</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>	Unpacking/Labeling The Samples	Yes	No	NA	Containers are not broken or leaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Samples compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	COC is complete w/o discrepancies	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sample custody seal?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Sample containers have legible labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample date/times are provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Appropriate containers are used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample bottles are completely filled?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sample preservatives verified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Is the Field Sampler's name on COC?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Samples w/o discrepancies?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Zero headspace?*	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Alkalinity has no headspace?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Perchlorate has headspace? (Methods 314, 331, 6850)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Multiphasic samples are not present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Sample containers have legible labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																													
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*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

Login Sample Receipt Checklist

Client: Hawaii Department of Health

Job Number: 320-105614-1

Login Number: 105614

List Source: Eurofins Sacramento

List Number: 1

Creator: Oropeza, Salvador

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	REFER TO SSRN
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	N/A	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	N/A	
Cooler Temperature is recorded.	N/A	
COC is present.	N/A	
COC is filled out in ink and legible.	N/A	
COC is filled out with all pertinent information.	N/A	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	N/A	
Samples are received within Holding Time (excluding tests with immediate HTs)	N/A	
Sample containers have legible labels.	N/A	
Containers are not broken or leaking.	N/A	
Sample collection date/times are provided.	N/A	
Appropriate sample containers are used.	N/A	
Sample bottles are completely filled.	N/A	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	N/A	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Hawaii Department of Health

Job Number: 320-105614-1

Login Number: 105614

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

List Number: 2

List Creation: 10/11/23 02:18 PM

Creator: Arroyo, Haley

Question	Answer	Comment
The cooler's custody seal is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature acceptable, where thermal pres is required ($\leq 6^{\circ}\text{C}$, not frozen).	True	
Cooler Temperature is recorded.	True	
WV: Container Temp acceptable, where thermal pres is required ($\leq 6^{\circ}\text{C}$, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
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	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	