



# ANALYTICAL REPORT

## PREPARED FOR

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## JOB DESCRIPTION

Background Study

## JOB NUMBER

320-105223-1

# 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: Background Study

Job ID: 320-105223-1

## Qualifiers

### LCMS

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*+	LCS and/or LCSD is outside acceptance limits, high biased.
*1	LCS/LCSD RPD exceeds control limits.
*5-	Isotope dilution analyte is outside acceptance limits, low 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
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

# Case Narrative

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Job ID: 320-105223-1**

**Laboratory: Eurofins Sacramento**

## Narrative

### Comments

The laboratory was not able to report results for Perfluoropropionic acid PFPrA likely due to matrix issues.

### Receipt

The samples were received on 9/26/2023 9:05 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 2.7° C.

### Receipt Exceptions

The following sample was received past the laboratory's default holding time for TOPS & EOF testing: KOKEE-BCKG (320-105223-1).

The following samples were received on the last day of the holding time for TOPS testing: ML#1-PFAS-BCKG (320-105223-2) and KUD-PFAS-BCKG (320-105223-3).

The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): EQUIPMENT BLANK (320-105223-11). The containers for this sample were labeled with a collection time of 12:00. The collection time listed on the COC was used in the report.

### LCMS

Method 537 (modified): Some Isotope Dilution Analyte (IDA) recoveries associated with the following samples were below the method recommended limit: ML#1-PFAS-BCKG (320-105223-2), KALOLI POINT-BCKG (320-105223-4) and POLI-PFAS-BCKG (320-105223-5). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDAs for these samples.

Method 537 (modified): Some Isotope Dilution Analyte (IDA) recoveries are above the method recommended limit for the following samples: KUD-PFAS-BCKG (320-105223-3), (CCB 320-726774/4) and (CCVIS 320-726774/6). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

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 added to 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. The oxidation of M2-4:2FTS yields PFBA as a conversion product and this contribution is included in the reported results for PFBA in Post-Treatment fractions of both samples and QC aliquots.

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 subset of analytes in the LCS solution, which has been recently expanded to 70+ analytes. Consequently, the existing Post-Treatment control limits for LCS aliquots do not yet reflect the conversion of these additional analytes; control limits will be updated when sufficient data points are available.

Method 537 (modified): The laboratory control sample (LCS) for preparation batch 320-710937 and analytical batch 320-713697 recovered outside control limits for the following analyte: Perfluoro-n-octadecanoic acid (PFODA). 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 RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) in the following preparation batches recovered outside control limits for one or more analytes: 320-710937 and 320-722691

Method 537 (modified): Several continuing calibration verification standards (CCV) associated these samples recovered above the upper control limit for one or more analytes. The sample results associated with these CCVs were non-detects for the affected analytes; therefore, the data have been reported.

Method 537 (modified): The continuing calibration verification (CCV) associated with batch 320-710108 recovered outside the control

# Case Narrative

Client: Hawaii Department of Health  
Project/Site: Background Study

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## Job ID: 320-105223-1 (Continued)

### Laboratory: Eurofins Sacramento (Continued)

limits for the IDA compound 13C2 PFHxDA. The associated target analytes Perfluoro-n-hexadecanoic acid (PFHxDA) and Perfluoro-n-octadecanoic acid (PFODA) are in control in the CCV; therefore the data is reported.

Method 537 (modified): The transition mass ratio was outside of the established ratio limit for 6:2 FTCA and/or 10:2 FTCA in the following CCVL aliquots, as indicated by the "R" flag in the raw data: (CCVL 320-719297/2 and 726774/5). The analyte responses are in control in the CCVL and there is no adverse impact on reported results.

Method 537 (modified): Sample EQUIPMENT BLANK (320-105223-11) was re-analyzed (RA) outside analytical holding time to confirm potential false positive results due to laboratory contamination. The RA was non-detect for all analytes and the majority of analytes are reported from the RA for this sample.

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

### Organic Prep

Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-709746.

Method TOP Post-Prep/Pre-Prep: A deviation from the Standard Operating Procedure (SOP) occurred. Details are as follows: samples were extracted initially using a 10 g sample mass to meet client requirements for sample preparation mass. The resulting extract was split to yield the same sample equivalent mass as is specified in the laboratory's SOP.

Method TOP Post-Prep/Pre-Prep: The following samples were extracted outside of sample preparation holding time (HT) due to HT expiration prior to sample delivery or scheduling challenges associated with ISM processing: KOKEE-BCKG (320-105223-1), ML#1-PFAS-BCKG (320-105223-2) and KUD-PFAS-BCKG (320-105223-3), KALOLI POINT-BCKG (320-105223-4) and POLI-PFAS-BCKG (320-105223-5).

Method TOP Post-Prep: The following sample was prepared outside of preparation holding time to confirm sample detections: POLI-PFAS-BCKG (320-105223-5).

Method TOP Pre-Prep: The following samples in preparation batch 320-710937 were yellow in color following extraction. KOKEE-BCKG (320-105223-1), KUD-PFAS-BCKG (320-105223-3) and KALOLI POINT-BCKG (320-105223-4)

Method EOF Prep: A deviation from the Standard Operating Procedure (SOP) occurred. Details are as follows: samples were extracted initially using a 10 g sample aliquot to meet client requirements for sample preparation mass. The resulting extract was split and concentrated to yield the same overall sample preparation factor (1 g -> 2.5 ml) as is specified in the laboratory's SOP.

Method EOF: The following samples were extracted outside of the laboratory's default 28d holding time (HT) for sample preparation due to HT expiration prior to sample delivery or due to laboratory scheduling error: KOKEE-BCKG (320-105223-1), ML#1-PFAS-BCKG (320-105223-2), KUD-PFAS-BCKG (320-105223-3), KALOLI POINT-BCKG (320-105223-4), POLI-PFAS-BCKG (320-105223-5), MAK-PFHI-BCKG (320-105223-6), MP-BCKG (320-105223-7), NPALI-BCKG (320-105223-8), & KP-BCKG (320-105223-9). No HT studies have been performed indicating that EOF concentrations in environmental matrices change significantly after collection and the adverse impact of the noted HT anomaly is expected to be minimal.

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

# Case Narrative

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

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**Job ID: 320-105223-1 (Continued)**

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**Laboratory: Eurofins Sacramento (Continued)**

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# Detection Summary

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

## Client Sample ID: KOKEE-BCKG

## Lab Sample ID: 320-105223-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Extractable Organic Fluorine (EOF)	620	H	500		ng/g	1		CIC EOF	Total/NA
PFBA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFPeA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFHxA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFHpA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFOA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFNA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
Total PFCA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
Total PFCA	0.00				ug/Kg	1		Total PFCA-Sum	Pre-Treatment
Total PFCA	0.00				ug/Kg	1		Total PFCA-Sum	Post-Treatment
Incremented sample generated	1.0				NONE	1		Increment, Prep	Total/NA

## Client Sample ID: ML#1-PFAS-BCKG

## Lab Sample ID: 320-105223-2

Analyte	Result	Qualifier	NONE	NONE	Unit	Dil Fac	D	Method	Prep Type
PFBA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFPeA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFHxA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFHpA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFOA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFNA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
Total PFCA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
Total PFCA	0.00				ug/Kg	1		Total PFCA-Sum	Pre-Treatment
Total PFCA	0.00				ug/Kg	1		Total PFCA-Sum	Post-Treatment
Incremented sample generated	1.0				NONE	1		Increment, Prep	Total/NA

## Client Sample ID: KUD-PFAS-BCKG

## Lab Sample ID: 320-105223-3

Analyte	Result	Qualifier	NONE	NONE	Unit	Dil Fac	D	Method	Prep Type
PFBA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFPeA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFHxA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFHpA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFOA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFNA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
Total PFCA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
Total PFCA	0.00				ug/Kg	1		Total PFCA-Sum	Pre-Treatment
Total PFCA	0.00				ug/Kg	1		Total PFCA-Sum	Post-Treatment
Incremented sample generated	1.0				NONE	1		Increment, Prep	Total/NA

## Client Sample ID: KALOLI POINT-BCKG

## Lab Sample ID: 320-105223-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Extractable Organic Fluorine (EOF)	670	H	500		ng/g	1		CIC EOF	Total/NA
PFBA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFPeA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFHxA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFHpA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA

This Detection Summary does not include radiochemical test results.

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## Detection Summary

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

### Client Sample ID: KALOLI POINT-BCKG (Continued)

Lab Sample ID: 320-105223-4

Analyte	Result	Qualifier	NONE	NONE	Unit	Dil Fac	D	Method	Prep Type
PFOA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFNA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
Total PFCA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
Total PFCA	0.00				ug/Kg	1		Total PFCA-Sum	Pre-Treatment
Total PFCA	0.00				ug/Kg	1		Total PFCA-Sum	Post-Treatment
Incremented sample generated	1.0				NONE	1		Increment, Prep	Total/NA

### Client Sample ID: POLI-PFAS-BCKG

Lab Sample ID: 320-105223-5

Analyte	Result	Qualifier	NONE	NONE	Unit	Dil Fac	D	Method	Prep Type
PFBA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFPeA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFHxA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFHpA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFOA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFNA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
Total PFCA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
Total PFCA	0.00				ug/Kg	1		Total PFCA-Sum	Pre-Treatment
Total PFCA	0.00				ug/Kg	1		Total PFCA-Sum	Post-Treatment
Incremented sample generated	1.0				NONE	1		Increment, Prep	Total/NA

### Client Sample ID: MAK-PFHI-BCKG

Lab Sample ID: 320-105223-6

Analyte	Result	Qualifier	NONE	NONE	Unit	Dil Fac	D	Method	Prep Type
PFBA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFPeA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFHxA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFHpA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFOA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFNA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
Total PFCA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
Total PFCA	0.00				ug/Kg	1		Total PFCA-Sum	Pre-Treatment
Total PFCA	0.00				ug/Kg	1		Total PFCA-Sum	Post-Treatment
Incremented sample generated	1.0				NONE	1		Increment, Prep	Total/NA

### Client Sample ID: MP-BCKG

Lab Sample ID: 320-105223-7

Analyte	Result	Qualifier	NONE	NONE	Unit	Dil Fac	D	Method	Prep Type
PFBA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFPeA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFHxA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFHpA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFOA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFNA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
Total PFCA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
Total PFCA	0.00				ug/Kg	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: Background Study

Job ID: 320-105223-1

### Client Sample ID: MP-BCKG (Continued)

Lab Sample ID: 320-105223-7

Analyte	Result	Qualifier	NONE	NONE	Unit	Dil Fac	D	Method	Prep Type
Total PFCA	0.00				ug/Kg	1		Total PFCA-Sum	Post-Treatment
Incremented sample generated	1.0				NONE	1		Increment, Prep	Total/NA

### Client Sample ID: NPALI-BCKG

Lab Sample ID: 320-105223-8

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	1.1		0.97		ug/Kg	1		537 (modified)	Post-Treatment
PFBA	1.1				ug/Kg	1		Total PFCA-Dif	Total/NA
PFPeA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFHxA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFHpA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFOA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFNA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
Total PFCA	1.1				ug/Kg	1		Total PFCA-Dif	Total/NA
Total PFCA	0.00				ug/Kg	1		Total PFCA-Sum	Pre-Treatment
Total PFCA	1.1				ug/Kg	1		Total PFCA-Sum	Post-Treatment
Incremented sample generated	1.0				NONE	1		Increment, Prep	Total/NA

### Client Sample ID: KP-BCKG

Lab Sample ID: 320-105223-9

Analyte	Result	Qualifier	NONE	NONE	Unit	Dil Fac	D	Method	Prep Type
PFBA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFPeA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFHxA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFHpA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFOA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
PFNA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
Total PFCA	0.00				ug/Kg	1		Total PFCA-Dif	Total/NA
Total PFCA	0.00				ug/Kg	1		Total PFCA-Sum	Pre-Treatment
Total PFCA	0.00				ug/Kg	1		Total PFCA-Sum	Post-Treatment
Incremented sample generated	1.0				NONE	1		Increment, Prep	Total/NA

### Client Sample ID: SOURCE BLANK

Lab Sample ID: 320-105223-10

No Detections.

### Client Sample ID: EQUIPMENT BLANK

Lab Sample ID: 320-105223-11

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Sacramento

# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: KOKEE-BCKG**

**Lab Sample ID: 320-105223-1**

Date Collected: 08/08/23 13:30

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
Perfluoropentanoic acid (PFPeA)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
Perfluorohexanoic acid (PFHxA)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
Perfluoroheptanoic acid (PFHpA)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
Perfluorooctanoic acid (PFOA)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
Perfluorononanoic acid (PFNA)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
Perfluorodecanoic acid (PFDA)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
Perfluoroundecanoic acid (PFUnA)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
Perfluorododecanoic acid (PFDoA)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
Perfluorotridecanoic acid (PFTriDA)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
Perfluorotetradecanoic acid (PFTeA)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	H H3 *+ *1	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
Perfluorobutanesulfonic acid (PFBS)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
Perfluoropentanesulfonic acid (PFPeS)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
Perfluorohexanesulfonic acid (PFHxS)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
Perfluoroheptanesulfonic acid (PFHpS)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
Perfluorooctanesulfonic acid (PFOS)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
Perfluorononanesulfonic acid (PFNS)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
Perfluorodecanesulfonic acid (PFDS)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
Perfluorododecanesulfonic acid (PFDoS)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
Perfluorooctanesulfonamide (FOSA)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid (9Cl-PF3ONS)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: KOKEE-BCKG**

**Lab Sample ID: 320-105223-1**

Date Collected: 08/08/23 13:30

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
6:2 FTCA	ND	H H3	1.4		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
8:2 FTCA	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
10:2 FTCA	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
PFECHS	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
PFPrS	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	H H3 *1	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
Perfluoro-2-methoxyacetic acid (PFMOAA)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
PFPE-1	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
PFO5DA	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
PMPA	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
PEPA	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
R-EVE	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
NVHOS	ND	H H3	2.4		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
Hydro-EVE Acid	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
R-PSDCA	ND	H H3	1.4		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
Hydro-PS Acid	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/17/23 07:54	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C8 FOSA	67		25 - 150				10/04/23 23:13	10/17/23 07:54	1
13C4 PFBA	81		25 - 150				10/04/23 23:13	10/17/23 07:54	1
13C5 PFPeA	91		25 - 150				10/04/23 23:13	10/17/23 07:54	1
13C2 PFHxA	85		25 - 150				10/04/23 23:13	10/17/23 07:54	1
13C4 PFHpA	89		25 - 150				10/04/23 23:13	10/17/23 07:54	1
13C4 PFOA	87		25 - 150				10/04/23 23:13	10/17/23 07:54	1
13C5 PFNA	65		25 - 150				10/04/23 23:13	10/17/23 07:54	1
13C2 PFDA	64		25 - 150				10/04/23 23:13	10/17/23 07:54	1
13C2 PFUnA	68		25 - 150				10/04/23 23:13	10/17/23 07:54	1
13C2 PFDoA	67		25 - 150				10/04/23 23:13	10/17/23 07:54	1
13C2 PFTeDA	67		25 - 150				10/04/23 23:13	10/17/23 07:54	1
13C2 PFHxDA	64		25 - 150				10/04/23 23:13	10/17/23 07:54	1
13C3 PFBS	89		25 - 150				10/04/23 23:13	10/17/23 07:54	1
18O2 PFHxS	92		25 - 150				10/04/23 23:13	10/17/23 07:54	1
13C4 PFOS	62		25 - 150				10/04/23 23:13	10/17/23 07:54	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: KOKEE-BCKG**

**Lab Sample ID: 320-105223-1**

Date Collected: 08/08/23 13:30

Matrix: Solid

Date Received: 09/26/23 09:05

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d3-NMeFOSAA	78		25 - 150	10/04/23 23:13	10/17/23 07:54	1
d5-NEtFOSAA	79		25 - 150	10/04/23 23:13	10/17/23 07:54	1
M2-6:2 FTS	144		25 - 150	10/04/23 23:13	10/17/23 07:54	1
M2-8:2 FTS	133		25 - 150	10/04/23 23:13	10/17/23 07:54	1
13C2 10:2 FTS	103		25 - 150	10/04/23 23:13	10/17/23 07:54	1
d-N-MeFOSA-M	58		25 - 150	10/04/23 23:13	10/17/23 07:54	1
d-N-EtFOSA-M	64		25 - 150	10/04/23 23:13	10/17/23 07:54	1
d7-N-MeFOSE-M	60		25 - 150	10/04/23 23:13	10/17/23 07:54	1
d9-N-EtFOSE-M	56		25 - 150	10/04/23 23:13	10/17/23 07:54	1
13C3 HFPO-DA	73		25 - 150	10/04/23 23:13	10/17/23 07:54	1
13C-6:2 FTCA	67		25 - 150	10/04/23 23:13	10/17/23 07:54	1
13C-8:2 FTCA	53		25 - 150	10/04/23 23:13	10/17/23 07:54	1
13C-10:2 FTCA	42		25 - 150	10/04/23 23:13	10/17/23 07:54	1

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/19/23 00:11	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
M2-4:2 FTS	126		25 - 150	10/04/23 23:13	10/19/23 00:11	1			

**Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment - RA2**

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND	H H3	0.96		ug/Kg		10/04/23 23:13	10/24/23 02:11	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
13C3 PFBS	84		25 - 150	10/04/23 23:13	10/24/23 02:11	1			

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
Perfluoropentanoic acid (PFPeA)	ND	H H3 *+	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
Perfluorohexanoic acid (PFHxA)	ND	H H3 *+	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
Perfluoroheptanoic acid (PFHpA)	ND	H H3 *+	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
Perfluorooctanoic acid (PFOA)	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
Perfluorononanoic acid (PFNA)	ND	H H3 *+	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
Perfluorodecanoic acid (PFDA)	ND	H H3 *+	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
Perfluoroundecanoic acid (PFUnA)	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
Perfluorododecanoic acid (PFDoA)	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
Perfluorotridecanoic acid (PFTrDA)	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
Perfluorotetradecanoic acid (PFTeA)	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	H H3 *+	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
Perfluorobutanesulfonic acid (PFBS)	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
Perfluoropentanesulfonic acid (PFPeS)	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
Perfluorohexanesulfonic acid (PFHxS)	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
Perfluoroheptanesulfonic acid (PFHpS)	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: KOKEE-BCKG**

**Lab Sample ID: 320-105223-1**

Date Collected: 08/08/23 13:30

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
Perfluorononanesulfonic acid (PFNS)	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
Perfluorodecanesulfonic acid (PFDS)	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
Perfluorododecanesulfonic acid (PFDoS)	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
Perfluorooctanesulfonamide (FOSA)	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
6:2 FTCA	ND	H H3	1.5		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
8:2 FTCA	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
10:2 FTCA	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
PFECBS	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
PFPrS	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
Perfluoro-2-methoxyacetic acid (PFMOAA)	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
PFPE-1	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: KOKEE-BCKG**

**Lab Sample ID: 320-105223-1**

Date Collected: 08/08/23 13:30

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro(3,5,7,9-tetraoxadecanoic acid (PFO4DA)	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
Perfluoro(3,5,7-trioxaoctanoic acid (PFO3OA)	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
Perfluoro(3,5-dioxahexanoic acid (PFO2HxA)	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
PFO5DA	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
PMPA	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
PEPA	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
R-EVE	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
NVHOS	ND	H H3	2.5		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
Hydro-EVE Acid	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
R-PSDCA	ND	H H3	1.5		ug/Kg		10/04/23 23:09	10/17/23 12:26	1
Hydro-PS Acid	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/17/23 12:26	1

Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C8 FOSA	89		25 - 150				10/04/23 23:09	10/17/23 12:26	1
13C4 PFBA	62		25 - 150				10/04/23 23:09	10/17/23 12:26	1
13C5 PFPeA	98		25 - 150				10/04/23 23:09	10/17/23 12:26	1
13C2 PFHxA	98		25 - 150				10/04/23 23:09	10/17/23 12:26	1
13C4 PFHpA	97		25 - 150				10/04/23 23:09	10/17/23 12:26	1
13C4 PFOA	94		25 - 150				10/04/23 23:09	10/17/23 12:26	1
13C5 PFNA	94		25 - 150				10/04/23 23:09	10/17/23 12:26	1
13C2 PFDA	89		25 - 150				10/04/23 23:09	10/17/23 12:26	1
13C2 PFUnA	90		25 - 150				10/04/23 23:09	10/17/23 12:26	1
13C2 PFDaA	91		25 - 150				10/04/23 23:09	10/17/23 12:26	1
13C2 PFTeDA	84		25 - 150				10/04/23 23:09	10/17/23 12:26	1
13C2 PFHxDA	78		25 - 150				10/04/23 23:09	10/17/23 12:26	1
13C3 PFBS	91		25 - 150				10/04/23 23:09	10/17/23 12:26	1
18O2 PFHxS	100		25 - 150				10/04/23 23:09	10/17/23 12:26	1
13C4 PFOS	83		25 - 150				10/04/23 23:09	10/17/23 12:26	1
d3-NMeFOSAA	100		25 - 150				10/04/23 23:09	10/17/23 12:26	1
d5-NEtFOSAA	115		25 - 150				10/04/23 23:09	10/17/23 12:26	1
M2-4:2 FTS	0		0 - 10				10/04/23 23:09	10/17/23 12:26	1
M2-6:2 FTS	117		25 - 150				10/04/23 23:09	10/17/23 12:26	1
M2-8:2 FTS	108		25 - 150				10/04/23 23:09	10/17/23 12:26	1
13C2 10:2 FTS	111		25 - 150				10/04/23 23:09	10/17/23 12:26	1
d-N-MeFOSA-M	84		25 - 150				10/04/23 23:09	10/17/23 12:26	1
d-N-EtFOSA-M	72		25 - 150				10/04/23 23:09	10/17/23 12:26	1
d7-N-MeFOSE-M	72		25 - 150				10/04/23 23:09	10/17/23 12:26	1
d9-N-EtFOSE-M	55		25 - 150				10/04/23 23:09	10/17/23 12:26	1
13C3 HFPO-DA	84		25 - 150				10/04/23 23:09	10/17/23 12:26	1
13C-6:2 FTCA	83		25 - 150				10/04/23 23:09	10/17/23 12:26	1
13C-8:2 FTCA	82		25 - 150				10/04/23 23:09	10/17/23 12:26	1
13C-10:2 FTCA	94		25 - 150				10/04/23 23:09	10/17/23 12:26	1

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/18/23 23:04	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: KOKEE-BCKG**

**Lab Sample ID: 320-105223-1**

Date Collected: 08/08/23 13:30

Matrix: Solid

Date Received: 09/26/23 09:05

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-8:2 FTCA	74		25 - 150	10/04/23 23:09	10/18/23 23:04	1

**Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment - RA2**

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND	H H3	0.98		ug/Kg		10/04/23 23:09	10/23/23 22:26	1

  

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	81		25 - 150	10/04/23 23:09	10/23/23 22:26	1

**Method: Lab SOP CIC EOF - Extractable Organic Fluorine by Combustion Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Extractable Organic Fluorine (EOF)	620	H	500		ng/g		11/08/23 13:11	11/10/23 05:21	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				ug/Kg			10/30/23 09:17	1
PFPeA	0.00				ug/Kg			10/30/23 09:17	1
PFHxA	0.00				ug/Kg			10/30/23 09:17	1
PFHpA	0.00				ug/Kg			10/30/23 09:17	1
PFOA	0.00				ug/Kg			10/30/23 09:17	1
PFNA	0.00				ug/Kg			10/30/23 09:17	1
Total PFCA	0.00				ug/Kg			10/30/23 09:17	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	0.00				ug/Kg			10/17/23 07:54	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	0.00				ug/Kg			10/17/23 12:26	1

**General Chemistry**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Incremented sample generated (EPA Increment, Prep)	1.0				NONE			10/06/23 13:37	1

**Client Sample ID: ML#1-PFAS-BCKG**

**Lab Sample ID: 320-105223-2**

Date Collected: 09/12/23 17:00

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
Perfluoropentanoic acid (PFPeA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
Perfluorohexanoic acid (PFHxA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
Perfluoroheptanoic acid (PFHpA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
Perfluorooctanoic acid (PFOA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
Perfluorononanoic acid (PFNA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
Perfluorodecanoic acid (PFDA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
Perfluoroundecanoic acid (PFUnA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
Perfluorododecanoic acid (PFDoA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
Perfluorotridecanoic acid (PFTrDA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
Perfluorotetradecanoic acid (PFTeA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: ML#1-PFAS-BCKG**

**Lab Sample ID: 320-105223-2**

Date Collected: 09/12/23 17:00

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	H ** +1	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
Perfluorobutanesulfonic acid (PFBS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
Perfluoropentanesulfonic acid (PFPeS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
Perfluorohexanesulfonic acid (PFHxS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
Perfluoroheptanesulfonic acid (PFHpS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
Perfluorooctanesulfonic acid (PFOS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
Perfluorononanesulfonic acid (PFNS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
Perfluorodecanesulfonic acid (PFDS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
Perfluorododecanesulfonic acid (PFDoS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
Perfluorooctanesulfonamide (FOSA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
6:2 FTCA	ND	H	1.5		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
8:2 FTCA	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
10:2 FTCA	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
PFECBS	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
PFPrS	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: ML#1-PFAS-BCKG**

**Lab Sample ID: 320-105223-2**

Date Collected: 09/12/23 17:00

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	H *1	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
Perfluoro-2-methoxyacetic acid (PFMOAA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
PFPE-1	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
PFO5DA	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
PMPA	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
PEPA	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
R-EVE	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
NVHOS	ND	H	2.5		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
Hydro-EVE Acid	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
R-PSDCA	ND	H	1.5		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
Hydro-PS Acid	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:05	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C8 FOSA	108		25 - 150				10/04/23 23:13	10/17/23 08:05	1
13C4 PFBA	24	*5-	25 - 150				10/04/23 23:13	10/17/23 08:05	1
13C5 PFPeA	88		25 - 150				10/04/23 23:13	10/17/23 08:05	1
13C2 PFHxA	98		25 - 150				10/04/23 23:13	10/17/23 08:05	1
13C4 PFHpA	93		25 - 150				10/04/23 23:13	10/17/23 08:05	1
13C4 PFOA	95		25 - 150				10/04/23 23:13	10/17/23 08:05	1
13C5 PFNA	95		25 - 150				10/04/23 23:13	10/17/23 08:05	1
13C2 PFDA	98		25 - 150				10/04/23 23:13	10/17/23 08:05	1
13C2 PFUnA	101		25 - 150				10/04/23 23:13	10/17/23 08:05	1
13C2 PFDoA	87		25 - 150				10/04/23 23:13	10/17/23 08:05	1
13C2 PFTeDA	75		25 - 150				10/04/23 23:13	10/17/23 08:05	1
13C2 PFHxDA	24	*5-	25 - 150				10/04/23 23:13	10/17/23 08:05	1
13C3 PFBS	90		25 - 150				10/04/23 23:13	10/17/23 08:05	1
18O2 PFHxS	100		25 - 150				10/04/23 23:13	10/17/23 08:05	1
13C4 PFOS	89		25 - 150				10/04/23 23:13	10/17/23 08:05	1
d3-NMeFOSAA	90		25 - 150				10/04/23 23:13	10/17/23 08:05	1
d5-NEtFOSAA	100		25 - 150				10/04/23 23:13	10/17/23 08:05	1
M2-6:2 FTS	111		25 - 150				10/04/23 23:13	10/17/23 08:05	1
M2-8:2 FTS	135		25 - 150				10/04/23 23:13	10/17/23 08:05	1
13C2 10:2 FTS	106		25 - 150				10/04/23 23:13	10/17/23 08:05	1
d-N-MeFOSA-M	87		25 - 150				10/04/23 23:13	10/17/23 08:05	1
d-N-EtFOSA-M	86		25 - 150				10/04/23 23:13	10/17/23 08:05	1
d7-N-MeFOSE-M	65		25 - 150				10/04/23 23:13	10/17/23 08:05	1
d9-N-EtFOSE-M	62		25 - 150				10/04/23 23:13	10/17/23 08:05	1
13C3 HFPO-DA	76		25 - 150				10/04/23 23:13	10/17/23 08:05	1
13C-6:2 FTCA	76		25 - 150				10/04/23 23:13	10/17/23 08:05	1
13C-8:2 FTCA	76		25 - 150				10/04/23 23:13	10/17/23 08:05	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: ML#1-PFAS-BCKG**

**Lab Sample ID: 320-105223-2**

Date Collected: 09/12/23 17:00

Matrix: Solid

Date Received: 09/26/23 09:05

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-10:2 FTCA	72		25 - 150	10/04/23 23:13	10/17/23 08:05	1

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/19/23 00:22	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-4:2 FTS	97		25 - 150	10/04/23 23:13	10/19/23 00:22	1

**Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment - RA2**

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/24/23 02:22	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	92		25 - 150	10/04/23 23:13	10/24/23 02:22	1

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
Perfluoropentanoic acid (PFPeA)	ND	H **	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
Perfluorohexanoic acid (PFHxA)	ND	H **	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
Perfluoroheptanoic acid (PFHpA)	ND	H **	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
Perfluorooctanoic acid (PFOA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
Perfluorononanoic acid (PFNA)	ND	H **	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
Perfluorodecanoic acid (PFDA)	ND	H **	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
Perfluoroundecanoic acid (PFUnA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
Perfluorododecanoic acid (PFDoA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
Perfluorotridecanoic acid (PFTrDA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
Perfluorotetradecanoic acid (PFTeA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	H **	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
Perfluorobutanesulfonic acid (PFBS)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
Perfluoropentanesulfonic acid (PFPeS)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
Perfluorohexanesulfonic acid (PFHxS)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
Perfluoroheptanesulfonic acid (PFHpS)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
Perfluorooctanesulfonic acid (PFOS)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
Perfluorononanesulfonic acid (PFNS)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
Perfluorodecanesulfonic acid (PFDS)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
Perfluorododecanesulfonic acid (PFDoS)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
Perfluorooctanesulfonamide (FOSA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEFOSAA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: ML#1-PFAS-BCKG**

**Lab Sample ID: 320-105223-2**

Date Collected: 09/12/23 17:00

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
6:2 FTCA	ND	H	1.4		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
8:2 FTCA	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
10:2 FTCA	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
PFECHS	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
PFPrS	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
Perfluoro-2-methoxyacetic acid (PFMOAA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
PFPE-1	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
Perfluoro(3,5-dioxaheptanoic) acid (PFO2HxA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
PFO5DA	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
PMPA	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
PEPA	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
R-EVE	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
NVHOS	ND	H	2.4		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
Hydro-EVE Acid	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
R-PSDCA	ND	H	1.4		ug/Kg		10/04/23 23:09	10/17/23 12:37	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: ML#1-PFAS-BCKG**

**Lab Sample ID: 320-105223-2**

Date Collected: 09/12/23 17:00

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Hydro-PS Acid	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 12:37	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C8 FOSA	99		25 - 150				10/04/23 23:09	10/17/23 12:37	1
13C4 PFBA	27		25 - 150				10/04/23 23:09	10/17/23 12:37	1
13C5 PFPeA	98		25 - 150				10/04/23 23:09	10/17/23 12:37	1
13C2 PFHxA	92		25 - 150				10/04/23 23:09	10/17/23 12:37	1
13C4 PFHpA	89		25 - 150				10/04/23 23:09	10/17/23 12:37	1
13C4 PFOA	86		25 - 150				10/04/23 23:09	10/17/23 12:37	1
13C5 PFNA	85		25 - 150				10/04/23 23:09	10/17/23 12:37	1
13C2 PFDA	89		25 - 150				10/04/23 23:09	10/17/23 12:37	1
13C2 PFUnA	91		25 - 150				10/04/23 23:09	10/17/23 12:37	1
13C2 PFDoA	90		25 - 150				10/04/23 23:09	10/17/23 12:37	1
13C2 PFTeDA	102		25 - 150				10/04/23 23:09	10/17/23 12:37	1
13C2 PFHxDA	79		25 - 150				10/04/23 23:09	10/17/23 12:37	1
13C3 PFBS	91		25 - 150				10/04/23 23:09	10/17/23 12:37	1
18O2 PFHxS	98		25 - 150				10/04/23 23:09	10/17/23 12:37	1
13C4 PFOS	82		25 - 150				10/04/23 23:09	10/17/23 12:37	1
d3-NMeFOSAA	94		25 - 150				10/04/23 23:09	10/17/23 12:37	1
d5-NEtFOSAA	110		25 - 150				10/04/23 23:09	10/17/23 12:37	1
M2-4:2 FTS	0		0 - 10				10/04/23 23:09	10/17/23 12:37	1
M2-6:2 FTS	109		25 - 150				10/04/23 23:09	10/17/23 12:37	1
M2-8:2 FTS	100		25 - 150				10/04/23 23:09	10/17/23 12:37	1
13C2 10:2 FTS	96		25 - 150				10/04/23 23:09	10/17/23 12:37	1
d-N-MeFOSA-M	87		25 - 150				10/04/23 23:09	10/17/23 12:37	1
d-N-EtFOSA-M	92		25 - 150				10/04/23 23:09	10/17/23 12:37	1
d7-N-MeFOSE-M	79		25 - 150				10/04/23 23:09	10/17/23 12:37	1
d9-N-EtFOSE-M	75		25 - 150				10/04/23 23:09	10/17/23 12:37	1
13C3 HFPO-DA	87		25 - 150				10/04/23 23:09	10/17/23 12:37	1
13C-6:2 FTCA	73		25 - 150				10/04/23 23:09	10/17/23 12:37	1
13C-8:2 FTCA	77		25 - 150				10/04/23 23:09	10/17/23 12:37	1
13C-10:2 FTCA	81		25 - 150				10/04/23 23:09	10/17/23 12:37	1

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/18/23 23:15	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-8:2 FTCA	76		25 - 150				10/04/23 23:09	10/18/23 23:15	1

**Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Post-Treatment - RA2**

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/23/23 22:38	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C3 PFBS	82		25 - 150				10/04/23 23:09	10/23/23 22:38	1

**Method: Lab SOP CIC EOF - Extractable Organic Fluorine by Combustion Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Extractable Organic Fluorine (EOF)	ND	H	500		ng/g		11/08/23 13:11	11/10/23 05:48	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: ML#1-PFAS-BCKG**

**Lab Sample ID: 320-105223-2**

Date Collected: 09/12/23 17:00

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
PFBA	0.00				ug/Kg			10/30/23 09:17	1
PFPeA	0.00				ug/Kg			10/30/23 09:17	1
PFHxA	0.00				ug/Kg			10/30/23 09:17	1
PFHpA	0.00				ug/Kg			10/30/23 09:17	1
PFOA	0.00				ug/Kg			10/30/23 09:17	1
PFNA	0.00				ug/Kg			10/30/23 09:17	1
Total PFCA	0.00				ug/Kg			10/30/23 09:17	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	0.00				ug/Kg			10/17/23 08:05	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	0.00				ug/Kg			10/17/23 12:37	1

**General Chemistry**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Incremented sample generated (EPA Increment, Prep)	1.0				NONE			10/06/23 13:37	1

**Client Sample ID: KUD-PFAS-BCKG**

**Lab Sample ID: 320-105223-3**

Date Collected: 09/12/23 18:45

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
Perfluoropentanoic acid (PFPeA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
Perfluorohexanoic acid (PFHxA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
Perfluoroheptanoic acid (PFHpA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
Perfluorooctanoic acid (PFOA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
Perfluorononanoic acid (PFNA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
Perfluorodecanoic acid (PFDA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
Perfluoroundecanoic acid (PFUnA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
Perfluorododecanoic acid (PFDoA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
Perfluorotridecanoic acid (PFTrDA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
Perfluorotetradecanoic acid (PFTeA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	H *1 *+	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
Perfluorobutanesulfonic acid (PFBS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
Perfluoropentanesulfonic acid (PFPeS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
Perfluorohexanesulfonic acid (PFHxS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
Perfluoroheptanesulfonic acid (PFHpS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
Perfluorooctanesulfonic acid (PFOS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
Perfluorononanesulfonic acid (PFNS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
Perfluorodecanesulfonic acid (PFDS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: KUD-PFAS-BCKG**

**Lab Sample ID: 320-105223-3**

Date Collected: 09/12/23 18:45

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanesulfonic acid (PFDoS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
Perfluorooctanesulfonamide (FOSA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
9-Chlorohexadecafluoro-3-oxanonane e-1-sulfonic acid (9Cl-PF3ONS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
11-Chloroeicosafluoro-3-oxaundecane e-1-sulfonic acid (11Cl-PF3OUdS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
6:2 FTCA	ND	H	1.5		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
8:2 FTCA	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
10:2 FTCA	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
PFECBS	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
PFPrS	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	H *1	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
Perfluoro-2-methoxyacetic acid (PFMOAA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
PFPE-1	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: KUD-PFAS-BCKG**

**Lab Sample ID: 320-105223-3**

Date Collected: 09/12/23 18:45

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
PFO5DA	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
PMPA	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
PEPA	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
R-EVE	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
NVHOS	ND	H	2.5		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
Hydro-EVE Acid	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
R-PSDCA	ND	H	1.5		ug/Kg		10/04/23 23:13	10/17/23 08:28	1
Hydro-PS Acid	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:28	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	100		25 - 150	10/04/23 23:13	10/17/23 08:28	1
13C4 PFBA	30		25 - 150	10/04/23 23:13	10/17/23 08:28	1
13C5 PFPeA	79		25 - 150	10/04/23 23:13	10/17/23 08:28	1
13C2 PFHxA	107		25 - 150	10/04/23 23:13	10/17/23 08:28	1
13C4 PFHpA	99		25 - 150	10/04/23 23:13	10/17/23 08:28	1
13C4 PFOA	92		25 - 150	10/04/23 23:13	10/17/23 08:28	1
13C5 PFNA	83		25 - 150	10/04/23 23:13	10/17/23 08:28	1
13C2 PFDA	90		25 - 150	10/04/23 23:13	10/17/23 08:28	1
13C2 PFUnA	99		25 - 150	10/04/23 23:13	10/17/23 08:28	1
13C2 PFDoA	95		25 - 150	10/04/23 23:13	10/17/23 08:28	1
13C2 PFTeDA	96		25 - 150	10/04/23 23:13	10/17/23 08:28	1
13C2 PFHxDA	56		25 - 150	10/04/23 23:13	10/17/23 08:28	1
13C3 PFBS	103		25 - 150	10/04/23 23:13	10/17/23 08:28	1
18O2 PFHxS	114		25 - 150	10/04/23 23:13	10/17/23 08:28	1
13C4 PFOS	89		25 - 150	10/04/23 23:13	10/17/23 08:28	1
d3-NMeFOSAA	103		25 - 150	10/04/23 23:13	10/17/23 08:28	1
d5-NEtFOSAA	113		25 - 150	10/04/23 23:13	10/17/23 08:28	1
M2-6:2 FTS	150		25 - 150	10/04/23 23:13	10/17/23 08:28	1
M2-8:2 FTS	199	*5+	25 - 150	10/04/23 23:13	10/17/23 08:28	1
13C2 10:2 FTS	146		25 - 150	10/04/23 23:13	10/17/23 08:28	1
d-N-MeFOSA-M	96		25 - 150	10/04/23 23:13	10/17/23 08:28	1
d-N-EtFOSA-M	92		25 - 150	10/04/23 23:13	10/17/23 08:28	1
d7-N-MeFOSE-M	74		25 - 150	10/04/23 23:13	10/17/23 08:28	1
d9-N-EtFOSE-M	71		25 - 150	10/04/23 23:13	10/17/23 08:28	1
13C3 HFPO-DA	83		25 - 150	10/04/23 23:13	10/17/23 08:28	1
13C-6:2 FTCA	70		25 - 150	10/04/23 23:13	10/17/23 08:28	1
13C-8:2 FTCA	69		25 - 150	10/04/23 23:13	10/17/23 08:28	1
13C-10:2 FTCA	69		25 - 150	10/04/23 23:13	10/17/23 08:28	1

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/19/23 00:33	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
M2-4:2 FTS	163	*5+	25 - 150	10/04/23 23:13	10/19/23 00:33	1			

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: KUD-PFAS-BCKG**

**Lab Sample ID: 320-105223-3**

Date Collected: 09/12/23 18:45

Matrix: Solid

Date Received: 09/26/23 09:05

**Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment - RA2**

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/24/23 02:33	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C3 PFBS	83		25 - 150				10/04/23 23:13	10/24/23 02:33	1

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
Perfluoropentanoic acid (PFPeA)	ND	H **	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
Perfluorohexanoic acid (PFHxA)	ND	H **	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
Perfluoroheptanoic acid (PFHpA)	ND	H **	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
Perfluorooctanoic acid (PFOA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
Perfluorononanoic acid (PFNA)	ND	H **	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
Perfluorodecanoic acid (PFDA)	ND	H **	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
Perfluoroundecanoic acid (PFUnA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
Perfluorododecanoic acid (PFDoA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
Perfluorotridecanoic acid (PFTrDA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
Perfluorotetradecanoic acid (PFTeA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	H **	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
Perfluorobutanesulfonic acid (PFBS)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
Perfluoropentanesulfonic acid (PFPeS)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
Perfluorohexanesulfonic acid (PFHxS)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
Perfluoroheptanesulfonic acid (PFHpS)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
Perfluorooctanesulfonic acid (PFOS)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
Perfluorononanesulfonic acid (PFNS)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
Perfluorodecanesulfonic acid (PFDS)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
Perfluorododecanesulfonic acid (PFDoS)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
Perfluorooctanesulfonamide (FOSA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: KUD-PFAS-BCKG**

**Lab Sample ID: 320-105223-3**

Date Collected: 09/12/23 18:45

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
6:2 FTCA	ND	H	1.4		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
8:2 FTCA	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
10:2 FTCA	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
PFECHS	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
PFPrS	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
Perfluoro-2-methoxyacetic acid (PFMOAA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
PFPE-1	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
Perfluoro(3,5-dioxaheptanoic) acid (PFO2HxA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
PFO5DA	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
PMPA	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
PEPA	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
R-EVE	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
NVHOS	ND	H	2.4		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
Hydro-EVE Acid	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
R-PSDCA	ND	H	1.4		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
Hydro-PS Acid	ND	H	0.96		ug/Kg		10/04/23 23:09	10/17/23 13:00	1
<b>Isotope Dilution</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
13C8 FOSA	95		25 - 150				10/04/23 23:09	10/17/23 13:00	1
13C4 PFBA	79		25 - 150				10/04/23 23:09	10/17/23 13:00	1
13C5 PFPeA	92		25 - 150				10/04/23 23:09	10/17/23 13:00	1
13C2 PFHxA	92		25 - 150				10/04/23 23:09	10/17/23 13:00	1
13C4 PFHpA	89		25 - 150				10/04/23 23:09	10/17/23 13:00	1
13C4 PFOA	91		25 - 150				10/04/23 23:09	10/17/23 13:00	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: KUD-PFAS-BCKG**

**Lab Sample ID: 320-105223-3**

Date Collected: 09/12/23 18:45

Matrix: Solid

Date Received: 09/26/23 09:05

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFNA	87		25 - 150	10/04/23 23:09	10/17/23 13:00	1
13C2 PFDA	87		25 - 150	10/04/23 23:09	10/17/23 13:00	1
13C2 PFUnA	88		25 - 150	10/04/23 23:09	10/17/23 13:00	1
13C2 PFDoA	89		25 - 150	10/04/23 23:09	10/17/23 13:00	1
13C2 PFTeDA	92		25 - 150	10/04/23 23:09	10/17/23 13:00	1
13C2 PFHxDA	77		25 - 150	10/04/23 23:09	10/17/23 13:00	1
13C3 PFBS	85		25 - 150	10/04/23 23:09	10/17/23 13:00	1
18O2 PFHxS	92		25 - 150	10/04/23 23:09	10/17/23 13:00	1
13C4 PFOS	80		25 - 150	10/04/23 23:09	10/17/23 13:00	1
d3-NMeFOSAA	102		25 - 150	10/04/23 23:09	10/17/23 13:00	1
d5-NEtFOSAA	118		25 - 150	10/04/23 23:09	10/17/23 13:00	1
M2-4:2 FTS	0		0 - 10	10/04/23 23:09	10/17/23 13:00	1
M2-6:2 FTS	108		25 - 150	10/04/23 23:09	10/17/23 13:00	1
M2-8:2 FTS	104		25 - 150	10/04/23 23:09	10/17/23 13:00	1
13C2 10:2 FTS	109		25 - 150	10/04/23 23:09	10/17/23 13:00	1
d-N-MeFOSA-M	72		25 - 150	10/04/23 23:09	10/17/23 13:00	1
d-N-EtFOSA-M	73		25 - 150	10/04/23 23:09	10/17/23 13:00	1
d7-N-MeFOSE-M	75		25 - 150	10/04/23 23:09	10/17/23 13:00	1
d9-N-EtFOSE-M	74		25 - 150	10/04/23 23:09	10/17/23 13:00	1
13C3 HFPO-DA	83		25 - 150	10/04/23 23:09	10/17/23 13:00	1
13C-6:2 FTCA	76		25 - 150	10/04/23 23:09	10/17/23 13:00	1
13C-8:2 FTCA	85		25 - 150	10/04/23 23:09	10/17/23 13:00	1
13C-10:2 FTCA	84		25 - 150	10/04/23 23:09	10/17/23 13:00	1

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND	H	0.96		ug/Kg		10/04/23 23:09	10/23/23 22:49	1

  

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	87		25 - 150	10/04/23 23:09	10/23/23 22:49	1

**Method: Lab SOP CIC EOF - Extractable Organic Fluorine by Combustion Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Extractable Organic Fluorine (EOF)	ND	H	500		ng/g		11/08/23 13:11	11/10/23 06:14	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				ug/Kg			10/30/23 09:17	1
PFPeA	0.00				ug/Kg			10/30/23 09:17	1
PFHxA	0.00				ug/Kg			10/30/23 09:17	1
PFHpA	0.00				ug/Kg			10/30/23 09:17	1
PFOA	0.00				ug/Kg			10/30/23 09:17	1
PFNA	0.00				ug/Kg			10/30/23 09:17	1
Total PFCA	0.00				ug/Kg			10/30/23 09:17	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	0.00				ug/Kg			10/17/23 08:28	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

## Client Sample ID: KUD-PFAS-BCKG

Lab Sample ID: 320-105223-3

Date Collected: 09/12/23 18:45

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	0.00				ug/Kg			10/17/23 13:00	1

### General Chemistry

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Incremented sample generated (EPA Increment, Prep)	1.0				NONE			10/06/23 13:37	1

## Client Sample ID: KALOLI POINT-BCKG

Lab Sample ID: 320-105223-4

Date Collected: 09/19/23 18:00

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
Perfluoropentanoic acid (PFPeA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
Perfluorohexanoic acid (PFHxA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
Perfluoroheptanoic acid (PFHpA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
Perfluorooctanoic acid (PFOA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
Perfluorononanoic acid (PFNA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
Perfluorodecanoic acid (PFDA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
Perfluoroundecanoic acid (PFUnA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
Perfluorododecanoic acid (PFDoA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
Perfluorotridecanoic acid (PFTTrDA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
Perfluorotetradecanoic acid (PFTeA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	H *1 *+	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
Perfluorobutanesulfonic acid (PFBS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
Perfluoropentanesulfonic acid (PFPeS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
Perfluorohexanesulfonic acid (PFHxS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
Perfluoroheptanesulfonic acid (PFHpS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
Perfluorooctanesulfonic acid (PFOS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
Perfluorononanesulfonic acid (PFNS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
Perfluorodecanesulfonic acid (PFDS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
Perfluorododecanesulfonic acid (PFDoS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
Perfluorooctanesulfonamide (FOSA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: KALOLI POINT-BCKG**

**Lab Sample ID: 320-105223-4**

Date Collected: 09/19/23 18:00

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
6:2 FTCA	ND	H	1.5		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
8:2 FTCA	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
10:2 FTCA	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
PFECHS	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
PFPPrS	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	H *1	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
Perfluoro-2-methoxyacetic acid (PFMOAA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
PFPE-1	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
PFO5DA	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
PMPA	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
PEPA	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
R-EVE	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
NVHOS	ND	H	2.5		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
Hydro-EVE Acid	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
R-PSDCA	ND	H	1.5		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
Hydro-PS Acid	ND	H	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:39	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C8 FOSA	112		25 - 150				10/04/23 23:13	10/17/23 08:39	1
13C4 PFBA	11	*5-	25 - 150				10/04/23 23:13	10/17/23 08:39	1
13C5 PFPeA	72		25 - 150				10/04/23 23:13	10/17/23 08:39	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: KALOLI POINT-BCKG**

**Lab Sample ID: 320-105223-4**

Date Collected: 09/19/23 18:00

Matrix: Solid

Date Received: 09/26/23 09:05

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	95		25 - 150	10/04/23 23:13	10/17/23 08:39	1
13C4 PFHpA	95		25 - 150	10/04/23 23:13	10/17/23 08:39	1
13C4 PFOA	99		25 - 150	10/04/23 23:13	10/17/23 08:39	1
13C5 PFNA	93		25 - 150	10/04/23 23:13	10/17/23 08:39	1
13C2 PFDA	89		25 - 150	10/04/23 23:13	10/17/23 08:39	1
13C2 PFUnA	86		25 - 150	10/04/23 23:13	10/17/23 08:39	1
13C2 PFDoA	84		25 - 150	10/04/23 23:13	10/17/23 08:39	1
13C2 PFTeDA	80		25 - 150	10/04/23 23:13	10/17/23 08:39	1
13C2 PFHxDA	47		25 - 150	10/04/23 23:13	10/17/23 08:39	1
13C3 PFBS	95		25 - 150	10/04/23 23:13	10/17/23 08:39	1
18O2 PFHxS	101		25 - 150	10/04/23 23:13	10/17/23 08:39	1
13C4 PFOS	90		25 - 150	10/04/23 23:13	10/17/23 08:39	1
d3-NMeFOSAA	59		25 - 150	10/04/23 23:13	10/17/23 08:39	1
d5-NEtFOSAA	80		25 - 150	10/04/23 23:13	10/17/23 08:39	1
M2-6:2 FTS	98		25 - 150	10/04/23 23:13	10/17/23 08:39	1
M2-8:2 FTS	127		25 - 150	10/04/23 23:13	10/17/23 08:39	1
13C2 10:2 FTS	104		25 - 150	10/04/23 23:13	10/17/23 08:39	1
d-N-MeFOSA-M	92		25 - 150	10/04/23 23:13	10/17/23 08:39	1
d-N-EtFOSA-M	92		25 - 150	10/04/23 23:13	10/17/23 08:39	1
d7-N-MeFOSE-M	60		25 - 150	10/04/23 23:13	10/17/23 08:39	1
d9-N-EtFOSE-M	60		25 - 150	10/04/23 23:13	10/17/23 08:39	1
13C3 HFPO-DA	74		25 - 150	10/04/23 23:13	10/17/23 08:39	1
13C-6:2 FTCA	67		25 - 150	10/04/23 23:13	10/17/23 08:39	1
13C-8:2 FTCA	72		25 - 150	10/04/23 23:13	10/17/23 08:39	1
13C-10:2 FTCA	73		25 - 150	10/04/23 23:13	10/17/23 08:39	1

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/19/23 00:44	1

  

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-4:2 FTS	90		25 - 150	10/04/23 23:13	10/19/23 00:44	1

**Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment - RA2**

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND	H	0.99		ug/Kg		10/04/23 23:13	10/24/23 02:44	1

  

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	88		25 - 150	10/04/23 23:13	10/24/23 02:44	1

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
Perfluoropentanoic acid (PFPeA)	ND	H **	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
Perfluorohexanoic acid (PFHxA)	ND	H **	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
Perfluoroheptanoic acid (PFHpA)	ND	H **	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
Perfluorooctanoic acid (PFOA)	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
Perfluorononanoic acid (PFNA)	ND	H **	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
Perfluorodecanoic acid (PFDA)	ND	H **	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
Perfluoroundecanoic acid (PFUnA)	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: KALOLI POINT-BCKG**

**Lab Sample ID: 320-105223-4**

Date Collected: 09/19/23 18:00

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanoic acid (PFDoA)	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
Perfluorotridecanoic acid (PFTrDA)	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
Perfluorotetradecanoic acid (PFTeA)	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	H**	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
Perfluorobutanesulfonic acid (PFBS)	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
Perfluoropentanesulfonic acid (PFPeS)	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
Perfluorohexanesulfonic acid (PFHxS)	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
Perfluoroheptanesulfonic acid (PFHpS)	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
Perfluorooctanesulfonic acid (PFOS)	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
Perfluorononanesulfonic acid (PFNS)	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
Perfluorodecanesulfonic acid (PFDS)	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
Perfluorododecanesulfonic acid (PFDoS)	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
Perfluorooctanesulfonamide (FOSA)	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
6:2 FTCA	ND	H	1.5		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
8:2 FTCA	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: KALOLI POINT-BCKG**

**Lab Sample ID: 320-105223-4**

Date Collected: 09/19/23 18:00

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
10:2 FTCA	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
PFECHS	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
PFPrS	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
Perfluoro-2-methoxyacetic acid (PFMOAA)	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
PFPE-1	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
PFO5DA	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
PMPA	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
PEPA	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
R-EVE	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
NVHOS	ND	H	2.5		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
Hydro-EVE Acid	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
R-PSDCA	ND	H	1.5		ug/Kg		10/04/23 23:09	10/17/23 13:11	1
Hydro-PS Acid	ND	H	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:11	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	76		25 - 150	10/04/23 23:09	10/17/23 13:11	1
13C4 PFBA	91		25 - 150	10/04/23 23:09	10/17/23 13:11	1
13C5 PFPeA	93		25 - 150	10/04/23 23:09	10/17/23 13:11	1
13C2 PFHxA	85		25 - 150	10/04/23 23:09	10/17/23 13:11	1
13C4 PFHpA	91		25 - 150	10/04/23 23:09	10/17/23 13:11	1
13C4 PFOA	92		25 - 150	10/04/23 23:09	10/17/23 13:11	1
13C5 PFNA	82		25 - 150	10/04/23 23:09	10/17/23 13:11	1
13C2 PFDA	84		25 - 150	10/04/23 23:09	10/17/23 13:11	1
13C2 PFUnA	85		25 - 150	10/04/23 23:09	10/17/23 13:11	1
13C2 PFDoA	85		25 - 150	10/04/23 23:09	10/17/23 13:11	1
13C2 PFTeDA	85		25 - 150	10/04/23 23:09	10/17/23 13:11	1
13C2 PFHxDA	76		25 - 150	10/04/23 23:09	10/17/23 13:11	1
13C3 PFBS	89		25 - 150	10/04/23 23:09	10/17/23 13:11	1
18O2 PFHxS	98		25 - 150	10/04/23 23:09	10/17/23 13:11	1
13C4 PFOS	78		25 - 150	10/04/23 23:09	10/17/23 13:11	1
d3-NMeFOSAA	98		25 - 150	10/04/23 23:09	10/17/23 13:11	1
d5-NEtFOSAA	99		25 - 150	10/04/23 23:09	10/17/23 13:11	1
M2-4:2 FTS	0		0 - 10	10/04/23 23:09	10/17/23 13:11	1
M2-6:2 FTS	108		25 - 150	10/04/23 23:09	10/17/23 13:11	1
M2-8:2 FTS	102		25 - 150	10/04/23 23:09	10/17/23 13:11	1
13C2 10:2 FTS	97		25 - 150	10/04/23 23:09	10/17/23 13:11	1
d-N-MeFOSA-M	61		25 - 150	10/04/23 23:09	10/17/23 13:11	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: KALOLI POINT-BCKG**

**Lab Sample ID: 320-105223-4**

Date Collected: 09/19/23 18:00

Matrix: Solid

Date Received: 09/26/23 09:05

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d-N-EtFOSA-M	69		25 - 150	10/04/23 23:09	10/17/23 13:11	1
d7-N-MeFOSE-M	74		25 - 150	10/04/23 23:09	10/17/23 13:11	1
d9-N-EtFOSE-M	71		25 - 150	10/04/23 23:09	10/17/23 13:11	1
13C3 HFPO-DA	86		25 - 150	10/04/23 23:09	10/17/23 13:11	1
13C-6:2 FTCA	76		25 - 150	10/04/23 23:09	10/17/23 13:11	1
13C-8:2 FTCA	72		25 - 150	10/04/23 23:09	10/17/23 13:11	1
13C-10:2 FTCA	70		25 - 150	10/04/23 23:09	10/17/23 13:11	1

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND	H	0.99		ug/Kg		10/04/23 23:09	10/23/23 23:00	1

  

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	85		25 - 150	10/04/23 23:09	10/23/23 23:00	1

**Method: Lab SOP CIC EOF - Extractable Organic Fluorine by Combustion Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Extractable Organic Fluorine (EOF)	670	H	500		ng/g		11/08/23 13:11	11/10/23 06:40	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				ug/Kg			10/30/23 09:17	1
PFPeA	0.00				ug/Kg			10/30/23 09:17	1
PFHxA	0.00				ug/Kg			10/30/23 09:17	1
PFHpA	0.00				ug/Kg			10/30/23 09:17	1
PFOA	0.00				ug/Kg			10/30/23 09:17	1
PFNA	0.00				ug/Kg			10/30/23 09:17	1
Total PFCA	0.00				ug/Kg			10/30/23 09:17	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	0.00				ug/Kg			10/17/23 08:39	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	0.00				ug/Kg			10/17/23 13:11	1

**General Chemistry**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Incremented sample generated (EPA Increment, Prep)	1.0				NONE			10/06/23 13:37	1

**Client Sample ID: POLI-PFAS-BCKG**

**Lab Sample ID: 320-105223-5**

Date Collected: 09/20/23 08:00

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
Perfluoropentanoic acid (PFPeA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
Perfluorohexanoic acid (PFHxA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
Perfluoroheptanoic acid (PFHpA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: POLI-PFAS-BCKG**

**Lab Sample ID: 320-105223-5**

Date Collected: 09/20/23 08:00

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
Perfluorononanoic acid (PFNA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
Perfluorodecanoic acid (PFDA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
Perfluoroundecanoic acid (PFUnA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
Perfluorododecanoic acid (PFDoA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	*1 **	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
Perfluorononanesulfonic acid (PFNS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
Perfluorooctanesulfonamide (FOSA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: POLI-PFAS-BCKG**

**Lab Sample ID: 320-105223-5**

Date Collected: 09/20/23 08:00

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 FTCA	ND		1.5		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
8:2 FTCA	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
10:2 FTCA	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
PFECHS	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
PFPrS	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	*1	0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
Perfluoro-2-methoxyacetic acid (PFMOAA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
PFPE-1	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
PFO5DA	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
PMPA	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
PEPA	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
R-EVE	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
NVHOS	ND		2.5		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
Hydro-EVE Acid	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
R-PSDCA	ND		1.5		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
Hydro-PS Acid	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 08:50	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C8 FOSA	105		25 - 150				10/04/23 23:13	10/17/23 08:50	1
13C4 PFBA	13	*5-	25 - 150				10/04/23 23:13	10/17/23 08:50	1
13C5 PFPeA	79		25 - 150				10/04/23 23:13	10/17/23 08:50	1
13C2 PFHxA	99		25 - 150				10/04/23 23:13	10/17/23 08:50	1
13C4 PFHpA	92		25 - 150				10/04/23 23:13	10/17/23 08:50	1
13C4 PFOA	98		25 - 150				10/04/23 23:13	10/17/23 08:50	1
13C5 PFNA	97		25 - 150				10/04/23 23:13	10/17/23 08:50	1
13C2 PFDA	85		25 - 150				10/04/23 23:13	10/17/23 08:50	1
13C2 PFUnA	99		25 - 150				10/04/23 23:13	10/17/23 08:50	1
13C2 PFDoA	98		25 - 150				10/04/23 23:13	10/17/23 08:50	1
13C2 PFTeDA	98		25 - 150				10/04/23 23:13	10/17/23 08:50	1
13C2 PFHxDA	68		25 - 150				10/04/23 23:13	10/17/23 08:50	1
13C3 PFBS	92		25 - 150				10/04/23 23:13	10/17/23 08:50	1
18O2 PFHxS	102		25 - 150				10/04/23 23:13	10/17/23 08:50	1
13C4 PFOS	94		25 - 150				10/04/23 23:13	10/17/23 08:50	1
d3-NMeFOSAA	70		25 - 150				10/04/23 23:13	10/17/23 08:50	1
d5-NEtFOSAA	94		25 - 150				10/04/23 23:13	10/17/23 08:50	1
M2-6:2 FTS	106		25 - 150				10/04/23 23:13	10/17/23 08:50	1
M2-8:2 FTS	126		25 - 150				10/04/23 23:13	10/17/23 08:50	1
13C2 10:2 FTS	118		25 - 150				10/04/23 23:13	10/17/23 08:50	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: POLI-PFAS-BCKG**

**Lab Sample ID: 320-105223-5**

Date Collected: 09/20/23 08:00

Matrix: Solid

Date Received: 09/26/23 09:05

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d-N-MeFOSA-M	89		25 - 150	10/04/23 23:13	10/17/23 08:50	1
d-N-EtFOSA-M	78		25 - 150	10/04/23 23:13	10/17/23 08:50	1
d7-N-MeFOSE-M	68		25 - 150	10/04/23 23:13	10/17/23 08:50	1
d9-N-EtFOSE-M	68		25 - 150	10/04/23 23:13	10/17/23 08:50	1
13C3 HFPO-DA	80		25 - 150	10/04/23 23:13	10/17/23 08:50	1
13C-6:2 FTCA	75		25 - 150	10/04/23 23:13	10/17/23 08:50	1
13C-8:2 FTCA	69		25 - 150	10/04/23 23:13	10/17/23 08:50	1
13C-10:2 FTCA	72		25 - 150	10/04/23 23:13	10/17/23 08:50	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		0.99	ug/Kg		10/04/23 23:13	10/19/23 00:55	1

  

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-4:2 FTS	128		25 - 150	10/04/23 23:13	10/19/23 00:55	1

**Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment - RA2**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		0.99	ug/Kg		10/04/23 23:13	10/24/23 02:55	1

  

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	86		25 - 150	10/04/23 23:13	10/24/23 02:55	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
PFPE-1	ND		0.96	ug/Kg		10/04/23 23:09	10/17/23 13:22	1
R-PSDCA	ND		1.4	ug/Kg		10/04/23 23:09	10/17/23 13:22	1

  

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFHpA	97		25 - 150	10/04/23 23:09	10/17/23 13:22	1
13C4 PFOS	93		25 - 150	10/04/23 23:09	10/17/23 13:22	1
13C-6:2 FTCA	76		25 - 150	10/04/23 23:09	10/17/23 13:22	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND	H **	0.97	ug/Kg		11/22/23 19:22	12/11/23 13:27	1
Perfluoropentanoic acid (PFPeA)	ND	H **	0.97	ug/Kg		11/22/23 19:22	12/11/23 13:27	1
Perfluorohexanoic acid (PFHxA)	ND	H **	0.97	ug/Kg		11/22/23 19:22	12/11/23 13:27	1
Perfluoroheptanoic acid (PFHpA)	ND	H **	0.97	ug/Kg		11/22/23 19:22	12/11/23 13:27	1
Perfluorooctanoic acid (PFOA)	ND	H	0.97	ug/Kg		11/22/23 19:22	12/11/23 13:27	1
Perfluorononanoic acid (PFNA)	ND	H **	0.97	ug/Kg		11/22/23 19:22	12/11/23 13:27	1
Perfluorodecanoic acid (PFDA)	ND	H **	0.97	ug/Kg		11/22/23 19:22	12/11/23 13:27	1
Perfluoroundecanoic acid (PFUnA)	ND	H	0.97	ug/Kg		11/22/23 19:22	12/11/23 13:27	1
Perfluorododecanoic acid (PFDoA)	ND	H ** *1	0.97	ug/Kg		11/22/23 19:22	12/11/23 13:27	1
Perfluorotridecanoic acid (PFTTrDA)	ND	H *1	0.97	ug/Kg		11/22/23 19:22	12/11/23 13:27	1
Perfluorotetradecanoic acid (PFTeA)	ND	H	0.97	ug/Kg		11/22/23 19:22	12/11/23 13:27	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND	H	0.97	ug/Kg		11/22/23 19:22	12/11/23 13:27	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	H *1	0.97	ug/Kg		11/22/23 19:22	12/11/23 13:27	1
Perfluorobutanesulfonic acid (PFBS)	ND	H	0.97	ug/Kg		11/22/23 19:22	12/11/23 13:27	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: POLI-PFAS-BCKG**

**Lab Sample ID: 320-105223-5**

Date Collected: 09/20/23 08:00

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanesulfonic acid (PFPeS)	ND	H **	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
Perfluorohexanesulfonic acid (PFHxS)	ND	H	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
Perfluoroheptanesulfonic acid (PFHpS)	ND	H	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
Perfluorooctanesulfonic acid (PFOS)	ND	H	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
Perfluorononanesulfonic acid (PFNS)	ND	H	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
Perfluorodecanesulfonic acid (PFDS)	ND	H	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
Perfluorododecanesulfonic acid (PFDoS)	ND	H *1	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
Perfluorooctanesulfonamide (FOSA)	ND	H	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	H	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	H	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	H	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	H	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	H	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND	H	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND	H	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND	H	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND	H	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND	H	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND	H	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND	H	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND	H *-	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	H	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND	H	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND	H	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND	H	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
6:2 FTCA	ND	H	1.5		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
8:2 FTCA	ND	H	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
10:2 FTCA	ND	H	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
PFECHS	ND	H	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
PFPrS	ND	H	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	H	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1

Eurofins Sacramento

# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: POLI-PFAS-BCKG**

**Lab Sample ID: 320-105223-5**

Date Collected: 09/20/23 08:00

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	H	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	H	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND	H	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
Perfluoro-2-methoxyacetic acid (PFMOAA)	ND	H	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	ND	H	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	ND	H	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	ND	H	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
PFO5DA	ND	H	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
PMPA	ND	H	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
PEPA	ND	H	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
R-EVE	ND	H **	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
NVHOS	ND	H	2.4		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
Hydro-EVE Acid	ND	H	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
Hydro-PS Acid	ND	H	0.97		ug/Kg		11/22/23 19:22	12/11/23 13:27	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C8 FOSA	78		25 - 150				11/22/23 19:22	12/11/23 13:27	1
13C4 PFBA	96		25 - 150				11/22/23 19:22	12/11/23 13:27	1
13C5 PFPeA	93		25 - 150				11/22/23 19:22	12/11/23 13:27	1
13C2 PFHxA	97		25 - 150				11/22/23 19:22	12/11/23 13:27	1
13C4 PFHpA	108		25 - 150				11/22/23 19:22	12/11/23 13:27	1
13C4 PFOA	88		25 - 150				11/22/23 19:22	12/11/23 13:27	1
13C5 PFNA	94		25 - 150				11/22/23 19:22	12/11/23 13:27	1
13C2 PFDA	87		25 - 150				11/22/23 19:22	12/11/23 13:27	1
13C2 PFUnA	71		25 - 150				11/22/23 19:22	12/11/23 13:27	1
13C2 PFDoA	65		25 - 150				11/22/23 19:22	12/11/23 13:27	1
13C2 PFTeDA	72		25 - 150				11/22/23 19:22	12/11/23 13:27	1
13C2 PFHxDA	82		25 - 150				11/22/23 19:22	12/11/23 13:27	1
13C3 PFBS	90		25 - 150				11/22/23 19:22	12/11/23 13:27	1
18O2 PFHxS	96		25 - 150				11/22/23 19:22	12/11/23 13:27	1
13C4 PFOS	86		25 - 150				11/22/23 19:22	12/11/23 13:27	1
d3-NMeFOSAA	70		25 - 150				11/22/23 19:22	12/11/23 13:27	1
d5-NEtFOSAA	74		25 - 150				11/22/23 19:22	12/11/23 13:27	1
M2-4:2 FTS	0		0 - 10				11/22/23 19:22	12/11/23 13:27	1
M2-6:2 FTS	101		25 - 150				11/22/23 19:22	12/11/23 13:27	1
M2-8:2 FTS	107		25 - 150				11/22/23 19:22	12/11/23 13:27	1
13C2 10:2 FTS	78		25 - 150				11/22/23 19:22	12/11/23 13:27	1
d-N-MeFOSA-M	49		25 - 150				11/22/23 19:22	12/11/23 13:27	1
d-N-EtFOSA-M	39		25 - 150				11/22/23 19:22	12/11/23 13:27	1
d7-N-MeFOSE-M	65		25 - 150				11/22/23 19:22	12/11/23 13:27	1
d9-N-EtFOSE-M	56		25 - 150				11/22/23 19:22	12/11/23 13:27	1
13C3 HFPO-DA	92		25 - 150				11/22/23 19:22	12/11/23 13:27	1
13C-6:2 FTCA	92		25 - 150				11/22/23 19:22	12/11/23 13:27	1
13C-8:2 FTCA	93		25 - 150				11/22/23 19:22	12/11/23 13:27	1
13C-10:2 FTCA	91		25 - 150				11/22/23 19:22	12/11/23 13:27	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: POLI-PFAS-BCKG**

**Lab Sample ID: 320-105223-5**

Date Collected: 09/20/23 08:00

Matrix: Solid

Date Received: 09/26/23 09:05

**Method: Lab SOP CIC EOF - Extractable Organic Fluorine by Combustion Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Extractable Organic Fluorine (EOF)	ND	H	500		ng/g		11/08/23 13:11	11/10/23 07:59	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				ug/Kg			10/30/23 09:17	1
PFPeA	0.00				ug/Kg			10/30/23 09:17	1
PFHxA	0.00				ug/Kg			10/30/23 09:17	1
PFHpA	0.00				ug/Kg			10/30/23 09:17	1
PFOA	0.00				ug/Kg			10/30/23 09:17	1
PFNA	0.00				ug/Kg			10/30/23 09:17	1
Total PFCA	0.00				ug/Kg			10/30/23 09:17	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	0.00				ug/Kg			10/17/23 08:50	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	0.00				ug/Kg			12/11/23 13:27	1

**General Chemistry**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Incremented sample generated (EPA Increment, Prep)	1.0				NONE			10/06/23 13:37	1

**Client Sample ID: MAK-PFHI-BCKG**

**Lab Sample ID: 320-105223-6**

Date Collected: 09/21/23 08:30

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
Perfluoropentanoic acid (PFPeA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
Perfluorohexanoic acid (PFHxA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
Perfluoroheptanoic acid (PFHpA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
Perfluorooctanoic acid (PFOA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
Perfluorononanoic acid (PFNA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
Perfluorodecanoic acid (PFDA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
Perfluoroundecanoic acid (PFUnA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
Perfluorododecanoic acid (PFDoA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
Perfluorotridecanoic acid (PFTTrDA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	*1 *+	0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: MAK-PFHI-BCKG**

**Lab Sample ID: 320-105223-6**

Date Collected: 09/21/23 08:30

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
Perfluorononanesulfonic acid (PFNS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
Perfluorooctanesulfonamide (FOSA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
6:2 FTCA	ND		1.5		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
8:2 FTCA	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
10:2 FTCA	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
PFECHS	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
PFPrS	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	*1	0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
Perfluoro-2-methoxyacetic acid (PFMOAA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
PFPE-1	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: MAK-PFHI-BCKG**

**Lab Sample ID: 320-105223-6**

Date Collected: 09/21/23 08:30

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
PFO5DA	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
PMPA	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
PEPA	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
R-EVE	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
NVHOS	ND		2.5		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
Hydro-EVE Acid	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
R-PSDCA	ND		1.5		ug/Kg		10/04/23 23:13	10/17/23 09:01	1
Hydro-PS Acid	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:01	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	96		25 - 150	10/04/23 23:13	10/17/23 09:01	1
13C4 PFBA	58		25 - 150	10/04/23 23:13	10/17/23 09:01	1
13C5 PFPeA	93		25 - 150	10/04/23 23:13	10/17/23 09:01	1
13C2 PFHxA	92		25 - 150	10/04/23 23:13	10/17/23 09:01	1
13C4 PFHpA	87		25 - 150	10/04/23 23:13	10/17/23 09:01	1
13C4 PFOA	87		25 - 150	10/04/23 23:13	10/17/23 09:01	1
13C5 PFNA	87		25 - 150	10/04/23 23:13	10/17/23 09:01	1
13C2 PFDA	90		25 - 150	10/04/23 23:13	10/17/23 09:01	1
13C2 PFUnA	96		25 - 150	10/04/23 23:13	10/17/23 09:01	1
13C2 PFDaA	86		25 - 150	10/04/23 23:13	10/17/23 09:01	1
13C2 PFTeDA	82		25 - 150	10/04/23 23:13	10/17/23 09:01	1
13C2 PFHxDA	65		25 - 150	10/04/23 23:13	10/17/23 09:01	1
13C3 PFBS	85		25 - 150	10/04/23 23:13	10/17/23 09:01	1
18O2 PFHxS	91		25 - 150	10/04/23 23:13	10/17/23 09:01	1
13C4 PFOS	83		25 - 150	10/04/23 23:13	10/17/23 09:01	1
d3-NMeFOSAA	75		25 - 150	10/04/23 23:13	10/17/23 09:01	1
d5-NEtFOSAA	94		25 - 150	10/04/23 23:13	10/17/23 09:01	1
M2-6:2 FTS	103		25 - 150	10/04/23 23:13	10/17/23 09:01	1
M2-8:2 FTS	124		25 - 150	10/04/23 23:13	10/17/23 09:01	1
13C2 10:2 FTS	92		25 - 150	10/04/23 23:13	10/17/23 09:01	1
d-N-MeFOSA-M	77		25 - 150	10/04/23 23:13	10/17/23 09:01	1
d-N-EtFOSA-M	70		25 - 150	10/04/23 23:13	10/17/23 09:01	1
d7-N-MeFOSE-M	60		25 - 150	10/04/23 23:13	10/17/23 09:01	1
d9-N-EtFOSE-M	59		25 - 150	10/04/23 23:13	10/17/23 09:01	1
13C3 HFPO-DA	73		25 - 150	10/04/23 23:13	10/17/23 09:01	1
13C-6:2 FTCA	75		25 - 150	10/04/23 23:13	10/17/23 09:01	1
13C-8:2 FTCA	63		25 - 150	10/04/23 23:13	10/17/23 09:01	1
13C-10:2 FTCA	64		25 - 150	10/04/23 23:13	10/17/23 09:01	1

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		0.99		ug/Kg		10/04/23 23:13	10/19/23 01:06	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
M2-4:2 FTS	117		25 - 150	10/04/23 23:13	10/19/23 01:06	1			

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: MAK-PFHI-BCKG**

**Lab Sample ID: 320-105223-6**

Date Collected: 09/21/23 08:30

Matrix: Solid

Date Received: 09/26/23 09:05

**Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment - RA2**

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		0.99		ug/Kg		10/04/23 23:13	10/24/23 03:06	1
<b>Isotope Dilution</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
13C3 PFBS	82		25 - 150				10/04/23 23:13	10/24/23 03:06	1

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
Perfluoropentanoic acid (PFPeA)	ND	*+	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
Perfluorohexanoic acid (PFHxA)	ND	*+	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
Perfluoroheptanoic acid (PFHpA)	ND	*+	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
Perfluorooctanoic acid (PFOA)	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
Perfluorononanoic acid (PFNA)	ND	*+	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
Perfluorodecanoic acid (PFDA)	ND	*+	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
Perfluoroundecanoic acid (PFUnA)	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
Perfluorododecanoic acid (PFDoA)	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	*+	0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
Perfluorononanesulfonic acid (PFNS)	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
Perfluorooctanesulfonamide (FOSA)	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: MAK-PFHI-BCKG**

**Lab Sample ID: 320-105223-6**

Date Collected: 09/21/23 08:30

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
4,8-Dioxo-3H-perfluorononanoic acid (ADONA)	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
6:2 FTCA	ND		1.5		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
8:2 FTCA	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
10:2 FTCA	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
PFECHS	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
PFPrS	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
Perfluoro-2-methoxyacetic acid (PFMOAA)	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
PFPE-1	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
Perfluoro(3,5-dioxaheptanoic) acid (PFO2HxA)	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
PFO5DA	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
PMPA	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
PEPA	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
R-EVE	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
NVHOS	ND		2.5		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
Hydro-EVE Acid	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
R-PSDCA	ND		1.5		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
Hydro-PS Acid	ND		0.99		ug/Kg		10/04/23 23:09	10/17/23 13:33	1
<b>Isotope Dilution</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
13C8 FOSA	92		25 - 150				10/04/23 23:09	10/17/23 13:33	1
13C4 PFBA	26		25 - 150				10/04/23 23:09	10/17/23 13:33	1
13C5 PFPeA	94		25 - 150				10/04/23 23:09	10/17/23 13:33	1
13C2 PFHxA	94		25 - 150				10/04/23 23:09	10/17/23 13:33	1
13C4 PFHpA	95		25 - 150				10/04/23 23:09	10/17/23 13:33	1
13C4 PFOA	94		25 - 150				10/04/23 23:09	10/17/23 13:33	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: MAK-PFHI-BCKG**

**Lab Sample ID: 320-105223-6**

Date Collected: 09/21/23 08:30

Matrix: Solid

Date Received: 09/26/23 09:05

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFNA	88		25 - 150	10/04/23 23:09	10/17/23 13:33	1
13C2 PFDA	84		25 - 150	10/04/23 23:09	10/17/23 13:33	1
13C2 PFUnA	88		25 - 150	10/04/23 23:09	10/17/23 13:33	1
13C2 PFDoA	93		25 - 150	10/04/23 23:09	10/17/23 13:33	1
13C2 PFTeDA	100		25 - 150	10/04/23 23:09	10/17/23 13:33	1
13C2 PFHxDA	80		25 - 150	10/04/23 23:09	10/17/23 13:33	1
13C3 PFBS	85		25 - 150	10/04/23 23:09	10/17/23 13:33	1
18O2 PFHxS	94		25 - 150	10/04/23 23:09	10/17/23 13:33	1
13C4 PFOS	82		25 - 150	10/04/23 23:09	10/17/23 13:33	1
d3-NMeFOSAA	102		25 - 150	10/04/23 23:09	10/17/23 13:33	1
d5-NEtFOSAA	113		25 - 150	10/04/23 23:09	10/17/23 13:33	1
M2-4:2 FTS	0		0 - 10	10/04/23 23:09	10/17/23 13:33	1
M2-6:2 FTS	108		25 - 150	10/04/23 23:09	10/17/23 13:33	1
M2-8:2 FTS	103		25 - 150	10/04/23 23:09	10/17/23 13:33	1
13C2 10:2 FTS	98		25 - 150	10/04/23 23:09	10/17/23 13:33	1
d-N-MeFOSA-M	86		25 - 150	10/04/23 23:09	10/17/23 13:33	1
d-N-EtFOSA-M	82		25 - 150	10/04/23 23:09	10/17/23 13:33	1
d7-N-MeFOSE-M	76		25 - 150	10/04/23 23:09	10/17/23 13:33	1
d9-N-EtFOSE-M	77		25 - 150	10/04/23 23:09	10/17/23 13:33	1
13C3 HFPO-DA	89		25 - 150	10/04/23 23:09	10/17/23 13:33	1
13C-6:2 FTCA	81		25 - 150	10/04/23 23:09	10/17/23 13:33	1
13C-8:2 FTCA	80		25 - 150	10/04/23 23:09	10/17/23 13:33	1
13C-10:2 FTCA	89		25 - 150	10/04/23 23:09	10/17/23 13:33	1

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		0.99		ug/Kg		10/04/23 23:09	10/23/23 23:22	1

  

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	86		25 - 150	10/04/23 23:09	10/23/23 23:22	1

**Method: Lab SOP CIC EOF - Extractable Organic Fluorine by Combustion Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Extractable Organic Fluorine (EOF)	ND	H	500		ng/g		11/08/23 13:11	11/10/23 08:26	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				ug/Kg			10/30/23 09:17	1
PFPeA	0.00				ug/Kg			10/30/23 09:17	1
PFHxA	0.00				ug/Kg			10/30/23 09:17	1
PFHpA	0.00				ug/Kg			10/30/23 09:17	1
PFOA	0.00				ug/Kg			10/30/23 09:17	1
PFNA	0.00				ug/Kg			10/30/23 09:17	1
Total PFCA	0.00				ug/Kg			10/30/23 09:17	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	0.00				ug/Kg			10/17/23 09:01	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: MAK-PFHI-BCKG**

**Lab Sample ID: 320-105223-6**

Date Collected: 09/21/23 08:30

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	0.00				ug/Kg			10/17/23 13:33	1

**General Chemistry**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Incremented sample generated (EPA Increment, Prep)	1.0				NONE			10/06/23 13:37	1

**Client Sample ID: MP-BCKG**

**Lab Sample ID: 320-105223-7**

Date Collected: 09/24/23 08:30

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
Perfluoropentanoic acid (PFPeA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
Perfluorohexanoic acid (PFHxA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
Perfluoroheptanoic acid (PFHpA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
Perfluorooctanoic acid (PFOA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
Perfluorononanoic acid (PFNA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
Perfluorodecanoic acid (PFDA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
Perfluoroundecanoic acid (PFUnA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
Perfluorododecanoic acid (PFDoA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
Perfluorotridecanoic acid (PFTTrDA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	*1 **	0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
Perfluorononanesulfonic acid (PFNS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
Perfluorooctanesulfonamide (FOSA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: MP-BCKG**

**Lab Sample ID: 320-105223-7**

Date Collected: 09/24/23 08:30

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
6:2 FTCA	ND		1.5		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
8:2 FTCA	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
10:2 FTCA	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
PFECHS	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
PFPPrS	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	*1	0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
Perfluoro-2-methoxyacetic acid (PFMOAA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
PFPE-1	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
Perfluoro(3,5-dioxaheptanoic) acid (PFO2HxA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
PFO5DA	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
PMPA	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
PEPA	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
R-EVE	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
NVHOS	ND		2.5		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
Hydro-EVE Acid	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
R-PSDCA	ND		1.5		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
Hydro-PS Acid	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:12	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C8 FOSA	103		25 - 150				10/04/23 23:13	10/17/23 09:12	1
13C4 PFBA	75		25 - 150				10/04/23 23:13	10/17/23 09:12	1
13C5 PFPeA	98		25 - 150				10/04/23 23:13	10/17/23 09:12	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: MP-BCKG**

**Lab Sample ID: 320-105223-7**

Date Collected: 09/24/23 08:30

Matrix: Solid

Date Received: 09/26/23 09:05

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	92		25 - 150	10/04/23 23:13	10/17/23 09:12	1
13C4 PFHpA	96		25 - 150	10/04/23 23:13	10/17/23 09:12	1
13C4 PFOA	93		25 - 150	10/04/23 23:13	10/17/23 09:12	1
13C5 PFNA	87		25 - 150	10/04/23 23:13	10/17/23 09:12	1
13C2 PFDA	81		25 - 150	10/04/23 23:13	10/17/23 09:12	1
13C2 PFUnA	100		25 - 150	10/04/23 23:13	10/17/23 09:12	1
13C2 PFDoA	89		25 - 150	10/04/23 23:13	10/17/23 09:12	1
13C2 PFTeDA	92		25 - 150	10/04/23 23:13	10/17/23 09:12	1
13C2 PFHxDA	72		25 - 150	10/04/23 23:13	10/17/23 09:12	1
13C3 PFBS	87		25 - 150	10/04/23 23:13	10/17/23 09:12	1
18O2 PFHxS	97		25 - 150	10/04/23 23:13	10/17/23 09:12	1
13C4 PFOS	85		25 - 150	10/04/23 23:13	10/17/23 09:12	1
d3-NMeFOSAA	76		25 - 150	10/04/23 23:13	10/17/23 09:12	1
d5-NEtFOSAA	86		25 - 150	10/04/23 23:13	10/17/23 09:12	1
M2-6:2 FTS	105		25 - 150	10/04/23 23:13	10/17/23 09:12	1
M2-8:2 FTS	109		25 - 150	10/04/23 23:13	10/17/23 09:12	1
13C2 10:2 FTS	105		25 - 150	10/04/23 23:13	10/17/23 09:12	1
d-N-MeFOSA-M	74		25 - 150	10/04/23 23:13	10/17/23 09:12	1
d-N-EtFOSA-M	64		25 - 150	10/04/23 23:13	10/17/23 09:12	1
d7-N-MeFOSE-M	70		25 - 150	10/04/23 23:13	10/17/23 09:12	1
d9-N-EtFOSE-M	64		25 - 150	10/04/23 23:13	10/17/23 09:12	1
13C3 HFPO-DA	76		25 - 150	10/04/23 23:13	10/17/23 09:12	1
13C-6:2 FTCA	75		25 - 150	10/04/23 23:13	10/17/23 09:12	1
13C-8:2 FTCA	69		25 - 150	10/04/23 23:13	10/17/23 09:12	1
13C-10:2 FTCA	68		25 - 150	10/04/23 23:13	10/17/23 09:12	1

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		0.99		ug/Kg		10/04/23 23:13	10/19/23 01:18	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
M2-4:2 FTS	112		25 - 150	10/04/23 23:13	10/19/23 01:18	1			

**Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment - RA2**

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		0.99		ug/Kg		10/04/23 23:13	10/24/23 03:18	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
13C3 PFBS	87		25 - 150	10/04/23 23:13	10/24/23 03:18	1			

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
Perfluoropentanoic acid (PFPeA)	ND	+	0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
Perfluorohexanoic acid (PFHxA)	ND	+	0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
Perfluoroheptanoic acid (PFHpA)	ND	+	0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
Perfluorooctanoic acid (PFOA)	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
Perfluorononanoic acid (PFNA)	ND	+	0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
Perfluorodecanoic acid (PFDA)	ND	+	0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
Perfluoroundecanoic acid (PFUnA)	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: MP-BCKG**

**Lab Sample ID: 320-105223-7**

Date Collected: 09/24/23 08:30

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanoic acid (PFDoA)	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	+	0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
Perfluorononanesulfonic acid (PFNS)	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
Perfluorooctanesulfonamide (FOSA)	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
4,8-Dioxo-3H-perfluorononanoic acid (ADONA)	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
6:2 FTCA	ND		1.5		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
8:2 FTCA	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: MP-BCKG**

**Lab Sample ID: 320-105223-7**

Date Collected: 09/24/23 08:30

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
10:2 FTCA	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
PFECHS	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
PFPrS	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
Perfluoro-2-methoxyacetic acid (PFMOAA)	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
PFPE-1	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
PFO5DA	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
PMPA	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
PEPA	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
R-EVE	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
NVHOS	ND		2.5		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
Hydro-EVE Acid	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
R-PSDCA	ND		1.5		ug/Kg		10/04/23 23:09	10/17/23 13:44	1
Hydro-PS Acid	ND		0.98		ug/Kg		10/04/23 23:09	10/17/23 13:44	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	97		25 - 150	10/04/23 23:09	10/17/23 13:44	1
13C4 PFBA	68		25 - 150	10/04/23 23:09	10/17/23 13:44	1
13C5 PFPeA	98		25 - 150	10/04/23 23:09	10/17/23 13:44	1
13C2 PFHxA	95		25 - 150	10/04/23 23:09	10/17/23 13:44	1
13C4 PFHpA	90		25 - 150	10/04/23 23:09	10/17/23 13:44	1
13C4 PFOA	92		25 - 150	10/04/23 23:09	10/17/23 13:44	1
13C5 PFNA	83		25 - 150	10/04/23 23:09	10/17/23 13:44	1
13C2 PFDA	86		25 - 150	10/04/23 23:09	10/17/23 13:44	1
13C2 PFUnA	88		25 - 150	10/04/23 23:09	10/17/23 13:44	1
13C2 PFDoA	98		25 - 150	10/04/23 23:09	10/17/23 13:44	1
13C2 PFTeDA	100		25 - 150	10/04/23 23:09	10/17/23 13:44	1
13C2 PFHxDA	90		25 - 150	10/04/23 23:09	10/17/23 13:44	1
13C3 PFBS	92		25 - 150	10/04/23 23:09	10/17/23 13:44	1
18O2 PFHxS	98		25 - 150	10/04/23 23:09	10/17/23 13:44	1
13C4 PFOS	84		25 - 150	10/04/23 23:09	10/17/23 13:44	1
d3-NMeFOSAA	100		25 - 150	10/04/23 23:09	10/17/23 13:44	1
d5-NEtFOSAA	110		25 - 150	10/04/23 23:09	10/17/23 13:44	1
M2-4:2 FTS	0		0 - 10	10/04/23 23:09	10/17/23 13:44	1
M2-6:2 FTS	115		25 - 150	10/04/23 23:09	10/17/23 13:44	1
M2-8:2 FTS	121		25 - 150	10/04/23 23:09	10/17/23 13:44	1
13C2 10:2 FTS	115		25 - 150	10/04/23 23:09	10/17/23 13:44	1
d-N-MeFOSA-M	82		25 - 150	10/04/23 23:09	10/17/23 13:44	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: MP-BCKG**

**Lab Sample ID: 320-105223-7**

Date Collected: 09/24/23 08:30

Matrix: Solid

Date Received: 09/26/23 09:05

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d-N-EtFOSA-M	75		25 - 150	10/04/23 23:09	10/17/23 13:44	1
d7-N-MeFOSE-M	77		25 - 150	10/04/23 23:09	10/17/23 13:44	1
d9-N-EtFOSE-M	75		25 - 150	10/04/23 23:09	10/17/23 13:44	1
13C3 HFPO-DA	84		25 - 150	10/04/23 23:09	10/17/23 13:44	1
13C-6:2 FTCA	74		25 - 150	10/04/23 23:09	10/17/23 13:44	1
13C-8:2 FTCA	84		25 - 150	10/04/23 23:09	10/17/23 13:44	1
13C-10:2 FTCA	85		25 - 150	10/04/23 23:09	10/17/23 13:44	1

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		0.98		ug/Kg		10/04/23 23:09	10/23/23 23:33	1

  

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	90		25 - 150	10/04/23 23:09	10/23/23 23:33	1

**Method: Lab SOP CIC EOF - Extractable Organic Fluorine by Combustion Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Extractable Organic Fluorine (EOF)	ND	H	500		ng/g		11/08/23 13:11	11/10/23 08:52	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				ug/Kg			10/30/23 09:17	1
PFPeA	0.00				ug/Kg			10/30/23 09:17	1
PFHxA	0.00				ug/Kg			10/30/23 09:17	1
PFHpA	0.00				ug/Kg			10/30/23 09:17	1
PFOA	0.00				ug/Kg			10/30/23 09:17	1
PFNA	0.00				ug/Kg			10/30/23 09:17	1
Total PFCA	0.00				ug/Kg			10/30/23 09:17	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	0.00				ug/Kg			10/17/23 09:12	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	0.00				ug/Kg			10/17/23 13:44	1

**General Chemistry**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Incremented sample generated (EPA Increment, Prep)	1.0				NONE			10/06/23 13:37	1

**Client Sample ID: NPALI-BCKG**

**Lab Sample ID: 320-105223-8**

Date Collected: 09/24/23 09:30

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
Perfluoropentanoic acid (PFPeA)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
Perfluorohexanoic acid (PFHxA)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
Perfluoroheptanoic acid (PFHpA)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: NPALI-BCKG**

**Lab Sample ID: 320-105223-8**

Date Collected: 09/24/23 09:30

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
Perfluorononanoic acid (PFNA)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
Perfluorodecanoic acid (PFDA)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
Perfluoroundecanoic acid (PFUnA)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
Perfluorododecanoic acid (PFDoA)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	*1 **	0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
Perfluorononanesulfonic acid (PFNS)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
Perfluorooctanesulfonamide (FOSA)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: NPALI-BCKG**

**Lab Sample ID: 320-105223-8**

Date Collected: 09/24/23 09:30

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
6:2 FTCA	ND		1.5		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
8:2 FTCA	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
10:2 FTCA	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
PFECHS	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
PFPrS	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	*1	0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
Perfluoro-2-methoxyacetic acid (PFMOAA)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
PFPE-1	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
Perfluoro(3,5-dioxaheptanoic) acid (PFO2HxA)	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
PFO5DA	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
PMPA	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
PEPA	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
R-EVE	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
NVHOS	ND		2.5		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
Hydro-EVE Acid	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
R-PSDCA	ND		1.5		ug/Kg		10/04/23 23:13	10/17/23 09:23	1
Hydro-PS Acid	ND		0.98		ug/Kg		10/04/23 23:13	10/17/23 09:23	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	111		25 - 150	10/04/23 23:13	10/17/23 09:23	1
13C4 PFBA	32		25 - 150	10/04/23 23:13	10/17/23 09:23	1
13C5 PFPeA	100		25 - 150	10/04/23 23:13	10/17/23 09:23	1
13C2 PFHxA	92		25 - 150	10/04/23 23:13	10/17/23 09:23	1
13C4 PFHpA	90		25 - 150	10/04/23 23:13	10/17/23 09:23	1
13C4 PFOA	91		25 - 150	10/04/23 23:13	10/17/23 09:23	1
13C5 PFNA	94		25 - 150	10/04/23 23:13	10/17/23 09:23	1
13C2 PFDA	97		25 - 150	10/04/23 23:13	10/17/23 09:23	1
13C2 PFUnA	99		25 - 150	10/04/23 23:13	10/17/23 09:23	1
13C2 PFDoA	83		25 - 150	10/04/23 23:13	10/17/23 09:23	1
13C2 PFTeDA	94		25 - 150	10/04/23 23:13	10/17/23 09:23	1
13C2 PFHxDA	29		25 - 150	10/04/23 23:13	10/17/23 09:23	1
13C3 PFBS	88		25 - 150	10/04/23 23:13	10/17/23 09:23	1
18O2 PFHxS	97		25 - 150	10/04/23 23:13	10/17/23 09:23	1
13C4 PFOS	90		25 - 150	10/04/23 23:13	10/17/23 09:23	1
d3-NMeFOSAA	82		25 - 150	10/04/23 23:13	10/17/23 09:23	1
d5-NEtFOSAA	87		25 - 150	10/04/23 23:13	10/17/23 09:23	1
M2-6:2 FTS	108		25 - 150	10/04/23 23:13	10/17/23 09:23	1
M2-8:2 FTS	130		25 - 150	10/04/23 23:13	10/17/23 09:23	1
13C2 10:2 FTS	80		25 - 150	10/04/23 23:13	10/17/23 09:23	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: NPALI-BCKG**

**Lab Sample ID: 320-105223-8**

Date Collected: 09/24/23 09:30

Matrix: Solid

Date Received: 09/26/23 09:05

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d-N-MeFOSA-M	89		25 - 150	10/04/23 23:13	10/17/23 09:23	1
d-N-EtFOSA-M	70		25 - 150	10/04/23 23:13	10/17/23 09:23	1
d7-N-MeFOSE-M	64		25 - 150	10/04/23 23:13	10/17/23 09:23	1
d9-N-EtFOSE-M	56		25 - 150	10/04/23 23:13	10/17/23 09:23	1
13C3 HFPO-DA	80		25 - 150	10/04/23 23:13	10/17/23 09:23	1
13C-6:2 FTCA	77		25 - 150	10/04/23 23:13	10/17/23 09:23	1
13C-8:2 FTCA	74		25 - 150	10/04/23 23:13	10/17/23 09:23	1
13C-10:2 FTCA	70		25 - 150	10/04/23 23:13	10/17/23 09:23	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		0.98	ug/Kg		10/04/23 23:13	10/19/23 01:40	1

  

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-4:2 FTS	111		25 - 150	10/04/23 23:13	10/19/23 01:40	1

**Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment - RA2**

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		0.98	ug/Kg		10/04/23 23:13	10/24/23 03:40	1

  

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	84		25 - 150	10/04/23 23:13	10/24/23 03:40	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	1.1		0.97	ug/Kg		10/04/23 23:09	10/17/23 13:55	1
Perfluoropentanoic acid (PFPeA)	ND	*+	0.97	ug/Kg		10/04/23 23:09	10/17/23 13:55	1
Perfluorohexanoic acid (PFHxA)	ND	*+	0.97	ug/Kg		10/04/23 23:09	10/17/23 13:55	1
Perfluoroheptanoic acid (PFHpA)	ND	*+	0.97	ug/Kg		10/04/23 23:09	10/17/23 13:55	1
Perfluorooctanoic acid (PFOA)	ND		0.97	ug/Kg		10/04/23 23:09	10/17/23 13:55	1
Perfluorononanoic acid (PFNA)	ND	*+	0.97	ug/Kg		10/04/23 23:09	10/17/23 13:55	1
Perfluorodecanoic acid (PFDA)	ND	*+	0.97	ug/Kg		10/04/23 23:09	10/17/23 13:55	1
Perfluoroundecanoic acid (PFUnA)	ND		0.97	ug/Kg		10/04/23 23:09	10/17/23 13:55	1
Perfluorododecanoic acid (PFDoA)	ND		0.97	ug/Kg		10/04/23 23:09	10/17/23 13:55	1
Perfluorotridecanoic acid (PFTTrDA)	ND		0.97	ug/Kg		10/04/23 23:09	10/17/23 13:55	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.97	ug/Kg		10/04/23 23:09	10/17/23 13:55	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		0.97	ug/Kg		10/04/23 23:09	10/17/23 13:55	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	*+	0.97	ug/Kg		10/04/23 23:09	10/17/23 13:55	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.97	ug/Kg		10/04/23 23:09	10/17/23 13:55	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.97	ug/Kg		10/04/23 23:09	10/17/23 13:55	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.97	ug/Kg		10/04/23 23:09	10/17/23 13:55	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.97	ug/Kg		10/04/23 23:09	10/17/23 13:55	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.97	ug/Kg		10/04/23 23:09	10/17/23 13:55	1
Perfluoronanesulfonic acid (PFNS)	ND		0.97	ug/Kg		10/04/23 23:09	10/17/23 13:55	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.97	ug/Kg		10/04/23 23:09	10/17/23 13:55	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.97	ug/Kg		10/04/23 23:09	10/17/23 13:55	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: NPALI-BCKG**

**Lab Sample ID: 320-105223-8**

Date Collected: 09/24/23 09:30

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonamide (FOSA)	ND		0.97		ug/Kg		10/04/23 23:09	10/17/23 13:55	1
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.97		ug/Kg		10/04/23 23:09	10/17/23 13:55	1
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.97		ug/Kg		10/04/23 23:09	10/17/23 13:55	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		0.97		ug/Kg		10/04/23 23:09	10/17/23 13:55	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		0.97		ug/Kg		10/04/23 23:09	10/17/23 13:55	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		0.97		ug/Kg		10/04/23 23:09	10/17/23 13:55	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		0.97		ug/Kg		10/04/23 23:09	10/17/23 13:55	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		0.97		ug/Kg		10/04/23 23:09	10/17/23 13:55	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		0.97		ug/Kg		10/04/23 23:09	10/17/23 13:55	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		0.97		ug/Kg		10/04/23 23:09	10/17/23 13:55	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		0.97		ug/Kg		10/04/23 23:09	10/17/23 13:55	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		0.97		ug/Kg		10/04/23 23:09	10/17/23 13:55	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		0.97		ug/Kg		10/04/23 23:09	10/17/23 13:55	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.97		ug/Kg		10/04/23 23:09	10/17/23 13:55	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.97		ug/Kg		10/04/23 23:09	10/17/23 13:55	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		0.97		ug/Kg		10/04/23 23:09	10/17/23 13:55	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		0.97		ug/Kg		10/04/23 23:09	10/17/23 13:55	1
6:2 FTCA	ND		1.5		ug/Kg		10/04/23 23:09	10/17/23 13:55	1
8:2 FTCA	ND		0.97		ug/Kg		10/04/23 23:09	10/17/23 13:55	1
10:2 FTCA	ND		0.97		ug/Kg		10/04/23 23:09	10/17/23 13:55	1
PFECHS	ND		0.97		ug/Kg		10/04/23 23:09	10/17/23 13:55	1
PFPrS	ND		0.97		ug/Kg		10/04/23 23:09	10/17/23 13:55	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		0.97		ug/Kg		10/04/23 23:09	10/17/23 13:55	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.97		ug/Kg		10/04/23 23:09	10/17/23 13:55	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		0.97		ug/Kg		10/04/23 23:09	10/17/23 13:55	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		0.97		ug/Kg		10/04/23 23:09	10/17/23 13:55	1
Perfluoro-2-methoxyacetic acid (PFMOAA)	ND		0.97		ug/Kg		10/04/23 23:09	10/17/23 13:55	1
PFPE-1	ND		0.97		ug/Kg		10/04/23 23:09	10/17/23 13:55	1
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	ND		0.97		ug/Kg		10/04/23 23:09	10/17/23 13:55	1
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	ND		0.97		ug/Kg		10/04/23 23:09	10/17/23 13:55	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: NPALI-BCKG**

**Lab Sample ID: 320-105223-8**

Date Collected: 09/24/23 09:30

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	ND		0.97		ug/Kg		10/04/23 23:09	10/17/23 13:55	1
PFO5DA	ND		0.97		ug/Kg		10/04/23 23:09	10/17/23 13:55	1
PMPA	ND		0.97		ug/Kg		10/04/23 23:09	10/17/23 13:55	1
PEPA	ND		0.97		ug/Kg		10/04/23 23:09	10/17/23 13:55	1
R-EVE	ND		0.97		ug/Kg		10/04/23 23:09	10/17/23 13:55	1
NVHOS	ND		2.4		ug/Kg		10/04/23 23:09	10/17/23 13:55	1
Hydro-EVE Acid	ND		0.97		ug/Kg		10/04/23 23:09	10/17/23 13:55	1
R-PSDCA	ND		1.5		ug/Kg		10/04/23 23:09	10/17/23 13:55	1
Hydro-PS Acid	ND		0.97		ug/Kg		10/04/23 23:09	10/17/23 13:55	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	92		25 - 150	10/04/23 23:09	10/17/23 13:55	1
13C4 PFBA	90		25 - 150	10/04/23 23:09	10/17/23 13:55	1
13C5 PFPeA	103		25 - 150	10/04/23 23:09	10/17/23 13:55	1
13C2 PFHxA	98		25 - 150	10/04/23 23:09	10/17/23 13:55	1
13C4 PFHpA	91		25 - 150	10/04/23 23:09	10/17/23 13:55	1
13C4 PFOA	94		25 - 150	10/04/23 23:09	10/17/23 13:55	1
13C5 PFNA	91		25 - 150	10/04/23 23:09	10/17/23 13:55	1
13C2 PFDA	81		25 - 150	10/04/23 23:09	10/17/23 13:55	1
13C2 PFUnA	91		25 - 150	10/04/23 23:09	10/17/23 13:55	1
13C2 PFDoA	99		25 - 150	10/04/23 23:09	10/17/23 13:55	1
13C2 PFTeDA	96		25 - 150	10/04/23 23:09	10/17/23 13:55	1
13C2 PFHxDA	79		25 - 150	10/04/23 23:09	10/17/23 13:55	1
13C3 PFBS	93		25 - 150	10/04/23 23:09	10/17/23 13:55	1
18O2 PFHxS	103		25 - 150	10/04/23 23:09	10/17/23 13:55	1
13C4 PFOS	88		25 - 150	10/04/23 23:09	10/17/23 13:55	1
d3-NMeFOSAA	93		25 - 150	10/04/23 23:09	10/17/23 13:55	1
d5-NEtFOSAA	106		25 - 150	10/04/23 23:09	10/17/23 13:55	1
M2-4:2 FTS	0		0 - 10	10/04/23 23:09	10/17/23 13:55	1
M2-6:2 FTS	114		25 - 150	10/04/23 23:09	10/17/23 13:55	1
M2-8:2 FTS	103		25 - 150	10/04/23 23:09	10/17/23 13:55	1
13C2 10:2 FTS	115		25 - 150	10/04/23 23:09	10/17/23 13:55	1
d-N-MeFOSA-M	71		25 - 150	10/04/23 23:09	10/17/23 13:55	1
d-N-EtFOSA-M	74		25 - 150	10/04/23 23:09	10/17/23 13:55	1
d7-N-MeFOSE-M	74		25 - 150	10/04/23 23:09	10/17/23 13:55	1
d9-N-EtFOSE-M	77		25 - 150	10/04/23 23:09	10/17/23 13:55	1
13C3 HFPO-DA	89		25 - 150	10/04/23 23:09	10/17/23 13:55	1
13C-6:2 FTCA	82		25 - 150	10/04/23 23:09	10/17/23 13:55	1
13C-8:2 FTCA	72		25 - 150	10/04/23 23:09	10/17/23 13:55	1
13C-10:2 FTCA	84		25 - 150	10/04/23 23:09	10/17/23 13:55	1

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		0.97		ug/Kg		10/04/23 23:09	10/23/23 23:56	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
13C3 PFBS	85		25 - 150	10/04/23 23:09	10/23/23 23:56	1			

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: NPALI-BCKG**

**Lab Sample ID: 320-105223-8**

Date Collected: 09/24/23 09:30

Matrix: Solid

Date Received: 09/26/23 09:05

**Method: Lab SOP CIC EOF - Extractable Organic Fluorine by Combustion Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Extractable Organic Fluorine (EOF)	ND	H	500		ng/g		11/08/23 13:11	11/10/23 09:18	1

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

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
PFBA	1.1				ug/Kg			10/30/23 09:17	1
PFPeA	0.00				ug/Kg			10/30/23 09:17	1
PFHxA	0.00				ug/Kg			10/30/23 09:17	1
PFHpA	0.00				ug/Kg			10/30/23 09:17	1
PFOA	0.00				ug/Kg			10/30/23 09:17	1
PFNA	0.00				ug/Kg			10/30/23 09:17	1
Total PFCA	1.1				ug/Kg			10/30/23 09:17	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	0.00				ug/Kg			10/17/23 09:23	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	1.1				ug/Kg			10/17/23 13:55	1

**General Chemistry**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Incremented sample generated (EPA Increment, Prep)	1.0				NONE			10/06/23 13:37	1

**Client Sample ID: KP-BCKG**

**Lab Sample ID: 320-105223-9**

Date Collected: 09/24/23 12:30

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
Perfluoropentanoic acid (PFPeA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
Perfluorohexanoic acid (PFHxA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
Perfluoroheptanoic acid (PFHpA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
Perfluorooctanoic acid (PFOA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
Perfluorononanoic acid (PFNA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
Perfluorodecanoic acid (PFDA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
Perfluoroundecanoic acid (PFUnA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
Perfluorododecanoic acid (PFDoA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	*1 *+	0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: KP-BCKG**

**Lab Sample ID: 320-105223-9**

Date Collected: 09/24/23 12:30

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
Perfluorononanesulfonic acid (PFNS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
Perfluorooctanesulfonamide (FOSA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
6:2 FTCA	ND		1.5		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
8:2 FTCA	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
10:2 FTCA	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
PFECHS	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
PFPrS	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	*1	0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
Perfluoro-2-methoxyacetic acid (PFMOAA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
PFPE-1	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: KP-BCKG**

**Lab Sample ID: 320-105223-9**

Date Collected: 09/24/23 12:30

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
PFO5DA	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
PMPA	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
PEPA	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
R-EVE	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
NVHOS	ND		2.5		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
Hydro-EVE Acid	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
R-PSDCA	ND		1.5		ug/Kg		10/04/23 23:13	10/17/23 09:34	1
Hydro-PS Acid	ND		0.99		ug/Kg		10/04/23 23:13	10/17/23 09:34	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	121		25 - 150	10/04/23 23:13	10/17/23 09:34	1
13C4 PFBA	34		25 - 150	10/04/23 23:13	10/17/23 09:34	1
13C5 PFPeA	96		25 - 150	10/04/23 23:13	10/17/23 09:34	1
13C2 PFHxA	90		25 - 150	10/04/23 23:13	10/17/23 09:34	1
13C4 PFHpA	96		25 - 150	10/04/23 23:13	10/17/23 09:34	1
13C4 PFOA	98		25 - 150	10/04/23 23:13	10/17/23 09:34	1
13C5 PFNA	98		25 - 150	10/04/23 23:13	10/17/23 09:34	1
13C2 PFDA	107		25 - 150	10/04/23 23:13	10/17/23 09:34	1
13C2 PFUnA	104		25 - 150	10/04/23 23:13	10/17/23 09:34	1
13C2 PFDaA	96		25 - 150	10/04/23 23:13	10/17/23 09:34	1
13C2 PFTeDA	102		25 - 150	10/04/23 23:13	10/17/23 09:34	1
13C2 PFHxDA	48		25 - 150	10/04/23 23:13	10/17/23 09:34	1
13C3 PFBS	99		25 - 150	10/04/23 23:13	10/17/23 09:34	1
18O2 PFHxS	106		25 - 150	10/04/23 23:13	10/17/23 09:34	1
13C4 PFOS	97		25 - 150	10/04/23 23:13	10/17/23 09:34	1
d3-NMeFOSAA	90		25 - 150	10/04/23 23:13	10/17/23 09:34	1
d5-NEtFOSAA	92		25 - 150	10/04/23 23:13	10/17/23 09:34	1
M2-6:2 FTS	107		25 - 150	10/04/23 23:13	10/17/23 09:34	1
M2-8:2 FTS	124		25 - 150	10/04/23 23:13	10/17/23 09:34	1
13C2 10:2 FTS	97		25 - 150	10/04/23 23:13	10/17/23 09:34	1
d-N-MeFOSA-M	92		25 - 150	10/04/23 23:13	10/17/23 09:34	1
d-N-EtFOSA-M	100		25 - 150	10/04/23 23:13	10/17/23 09:34	1
d7-N-MeFOSE-M	79		25 - 150	10/04/23 23:13	10/17/23 09:34	1
d9-N-EtFOSE-M	69		25 - 150	10/04/23 23:13	10/17/23 09:34	1
13C3 HFPO-DA	85		25 - 150	10/04/23 23:13	10/17/23 09:34	1
13C-6:2 FTCA	83		25 - 150	10/04/23 23:13	10/17/23 09:34	1
13C-8:2 FTCA	74		25 - 150	10/04/23 23:13	10/17/23 09:34	1
13C-10:2 FTCA	75		25 - 150	10/04/23 23:13	10/17/23 09:34	1

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		0.99		ug/Kg		10/04/23 23:13	10/19/23 01:51	1
Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac			
M2-4:2 FTS	119		25 - 150	10/04/23 23:13	10/19/23 01:51	1			

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: KP-BCKG**

**Lab Sample ID: 320-105223-9**

Date Collected: 09/24/23 12:30

Matrix: Solid

Date Received: 09/26/23 09:05

**Method: EPA 537 (modified) - Fluorinated Alkyl Substances - Pre-Treatment - RA2**

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		0.99		ug/Kg		10/04/23 23:13	10/24/23 03:51	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C3 PFBS	84		25 - 150				10/04/23 23:13	10/24/23 03:51	1

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
Perfluoropentanoic acid (PFPeA)	ND	*+	0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
Perfluorohexanoic acid (PFHxA)	ND	*+	0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
Perfluoroheptanoic acid (PFHpA)	ND	*+	0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
Perfluorooctanoic acid (PFOA)	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
Perfluorononanoic acid (PFNA)	ND	*+	0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
Perfluorodecanoic acid (PFDA)	ND	*+	0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
Perfluoroundecanoic acid (PFUnA)	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
Perfluorododecanoic acid (PFDoA)	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
Perfluorotridecanoic acid (PFTrDA)	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	*+	0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
Perfluorononanesulfonic acid (PFNS)	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
Perfluorooctanesulfonamide (FOSA)	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: KP-BCKG**

**Lab Sample ID: 320-105223-9**

Date Collected: 09/24/23 12:30

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
4,8-Dioxo-3H-perfluorononanoic acid (ADONA)	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
6:2 FTCA	ND		1.4		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
8:2 FTCA	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
10:2 FTCA	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
PFECHS	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
PFPoS	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
Perfluoro-2-methoxyacetic acid (PFMOAA)	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
PFPE-1	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
Perfluoro(3,5-dioxaheptanoic) acid (PFO2HxA)	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
PFO5DA	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
PMPA	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
PEPA	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
R-EVE	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
NVHOS	ND		2.4		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
Hydro-EVE Acid	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
R-PSDCA	ND		1.4		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
Hydro-PS Acid	ND		0.96		ug/Kg		10/04/23 23:09	10/17/23 14:07	1
<b>Isotope Dilution</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
13C8 FOSA	97		25 - 150				10/04/23 23:09	10/17/23 14:07	1
13C4 PFBA	28		25 - 150				10/04/23 23:09	10/17/23 14:07	1
13C5 PFPeA	99		25 - 150				10/04/23 23:09	10/17/23 14:07	1
13C2 PFHxA	99		25 - 150				10/04/23 23:09	10/17/23 14:07	1
13C4 PFHpA	94		25 - 150				10/04/23 23:09	10/17/23 14:07	1
13C4 PFOA	97		25 - 150				10/04/23 23:09	10/17/23 14:07	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: KP-BCKG**

**Lab Sample ID: 320-105223-9**

Date Collected: 09/24/23 12:30

Matrix: Solid

Date Received: 09/26/23 09:05

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFNA	90		25 - 150	10/04/23 23:09	10/17/23 14:07	1
13C2 PFDA	94		25 - 150	10/04/23 23:09	10/17/23 14:07	1
13C2 PFUnA	97		25 - 150	10/04/23 23:09	10/17/23 14:07	1
13C2 PFDoA	95		25 - 150	10/04/23 23:09	10/17/23 14:07	1
13C2 PFTeDA	113		25 - 150	10/04/23 23:09	10/17/23 14:07	1
13C2 PFHxDA	94		25 - 150	10/04/23 23:09	10/17/23 14:07	1
13C3 PFBS	91		25 - 150	10/04/23 23:09	10/17/23 14:07	1
18O2 PFHxS	103		25 - 150	10/04/23 23:09	10/17/23 14:07	1
13C4 PFOS	84		25 - 150	10/04/23 23:09	10/17/23 14:07	1
d3-NMeFOSAA	110		25 - 150	10/04/23 23:09	10/17/23 14:07	1
d5-NEtFOSAA	120		25 - 150	10/04/23 23:09	10/17/23 14:07	1
M2-4:2 FTS	0		0 - 10	10/04/23 23:09	10/17/23 14:07	1
M2-6:2 FTS	116		25 - 150	10/04/23 23:09	10/17/23 14:07	1
M2-8:2 FTS	117		25 - 150	10/04/23 23:09	10/17/23 14:07	1
13C2 10:2 FTS	131		25 - 150	10/04/23 23:09	10/17/23 14:07	1
d-N-MeFOSA-M	89		25 - 150	10/04/23 23:09	10/17/23 14:07	1
d-N-EtFOSA-M	89		25 - 150	10/04/23 23:09	10/17/23 14:07	1
d7-N-MeFOSE-M	81		25 - 150	10/04/23 23:09	10/17/23 14:07	1
d9-N-EtFOSE-M	76		25 - 150	10/04/23 23:09	10/17/23 14:07	1
13C3 HFPO-DA	88		25 - 150	10/04/23 23:09	10/17/23 14:07	1
13C-6:2 FTCA	86		25 - 150	10/04/23 23:09	10/17/23 14:07	1
13C-8:2 FTCA	80		25 - 150	10/04/23 23:09	10/17/23 14:07	1
13C-10:2 FTCA	102		25 - 150	10/04/23 23:09	10/17/23 14:07	1

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		0.96		ug/Kg		10/04/23 23:09	10/24/23 00:07	1

  

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C3 PFBS	86		25 - 150	10/04/23 23:09	10/24/23 00:07	1

**Method: Lab SOP CIC EOF - Extractable Organic Fluorine by Combustion Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Extractable Organic Fluorine (EOF)	ND	H	500		ng/g		11/08/23 13:11	11/10/23 09:45	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				ug/Kg			10/30/23 09:17	1
PFPeA	0.00				ug/Kg			10/30/23 09:17	1
PFHxA	0.00				ug/Kg			10/30/23 09:17	1
PFHpA	0.00				ug/Kg			10/30/23 09:17	1
PFOA	0.00				ug/Kg			10/30/23 09:17	1
PFNA	0.00				ug/Kg			10/30/23 09:17	1
Total PFCA	0.00				ug/Kg			10/30/23 09:17	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	0.00				ug/Kg			10/17/23 09:34	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: KP-BCKG**

**Lab Sample ID: 320-105223-9**

Date Collected: 09/24/23 12:30

Matrix: Solid

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Total PFCA	0.00				ug/Kg			10/17/23 14:07	1

**General Chemistry**

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
Incremented sample generated (EPA Increment, Prep)	1.0				NONE			10/06/23 13:37	1

**Client Sample ID: SOURCE BLANK**

**Lab Sample ID: 320-105223-10**

Date Collected: 09/25/23 12:00

Matrix: Water

Date Received: 09/26/23 09:05

**Method: EPA 537 (modified) - Fluorinated Alkyl Substances**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.4		ng/L		09/28/23 20:35	09/30/23 13:13	1
Perfluoropentanoic acid (PFPeA)	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
Perfluorohexanoic acid (PFHxA)	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
Perfluorooctanoic acid (PFOA)	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
Perfluorononanoic acid (PFNA)	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
Perfluorodecanoic acid (PFDA)	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
Perfluorododecanoic acid (PFDoA)	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
Perfluorotridecanoic acid (PFTTrDA)	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
Perfluoro-n-octadecanoic acid (PFODA)	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
Perfluorononanesulfonic acid (PFNS)	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
Perfluorooctanesulfonamide (FOSA)	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		4.4		ng/L		09/28/23 20:35	09/30/23 13:13	1
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		4.4		ng/L		09/28/23 20:35	09/30/23 13:13	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		4.4		ng/L		09/28/23 20:35	09/30/23 13:13	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: SOURCE BLANK**

**Lab Sample ID: 320-105223-10**

Date Collected: 09/25/23 12:00

Matrix: Water

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		3.5		ng/L		09/28/23 20:35	09/30/23 13:13	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		3.5		ng/L		09/28/23 20:35	09/30/23 13:13	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
11-Chloroeicosafluoro-3-oxadecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
6:2 FTCA	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
8:2 FTCA	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
10:2 FTCA	ND		2.6		ng/L		09/28/23 20:35	09/30/23 13:13	1
PFECHS	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
PFPrS	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
Perfluoro-2-methoxyacetic acid (PFMOAA)	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
PFPE-1	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
Perfluoro(3,5-dioxaheptanoic) acid (PFO2HxA)	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
PFO5DA	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
PMPA	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
PEPA	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
PFPrA	ND		4.4		ng/L		09/28/23 20:35	09/30/23 13:13	1
R-EVE	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
NVHOS	ND		2.6		ng/L		09/28/23 20:35	09/30/23 13:13	1
Hydro-EVE Acid	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
R-PSDCA	ND		2.6		ng/L		09/28/23 20:35	09/30/23 13:13	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: SOURCE BLANK**

**Lab Sample ID: 320-105223-10**

Date Collected: 09/25/23 12:00

Matrix: Water

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hydro-PS Acid	ND		1.8		ng/L		09/28/23 20:35	09/30/23 13:13	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C8 FOSA	114		25 - 150				09/28/23 20:35	09/30/23 13:13	1
13C4 PFBA	102		25 - 150				09/28/23 20:35	09/30/23 13:13	1
13C5 PFPeA	121		25 - 150				09/28/23 20:35	09/30/23 13:13	1
13C2 PFHxA	107		25 - 150				09/28/23 20:35	09/30/23 13:13	1
13C4 PFHpA	107		25 - 150				09/28/23 20:35	09/30/23 13:13	1
13C4 PFOA	106		25 - 150				09/28/23 20:35	09/30/23 13:13	1
13C5 PFNA	107		25 - 150				09/28/23 20:35	09/30/23 13:13	1
13C2 PFDA	111		25 - 150				09/28/23 20:35	09/30/23 13:13	1
13C2 PFUnA	102		25 - 150				09/28/23 20:35	09/30/23 13:13	1
13C2 PFDoA	105		25 - 150				09/28/23 20:35	09/30/23 13:13	1
13C2 PFTeDA	103		25 - 150				09/28/23 20:35	09/30/23 13:13	1
13C2 PFHxDA	85		25 - 150				09/28/23 20:35	09/30/23 13:13	1
13C3 PFBS	109		25 - 150				09/28/23 20:35	09/30/23 13:13	1
18O2 PFHxS	87		25 - 150				09/28/23 20:35	09/30/23 13:13	1
13C4 PFOS	98		25 - 150				09/28/23 20:35	09/30/23 13:13	1
d3-NMeFOSAA	79		25 - 150				09/28/23 20:35	09/30/23 13:13	1
d5-NEtFOSAA	89		25 - 150				09/28/23 20:35	09/30/23 13:13	1
M2-4:2 FTS	78		25 - 150				09/28/23 20:35	09/30/23 13:13	1
M2-6:2 FTS	89		25 - 150				09/28/23 20:35	09/30/23 13:13	1
M2-8:2 FTS	84		25 - 150				09/28/23 20:35	09/30/23 13:13	1
13C2 10:2 FTS	102		25 - 150				09/28/23 20:35	09/30/23 13:13	1
d-N-MeFOSA-M	89		20 - 150				09/28/23 20:35	09/30/23 13:13	1
d-N-EtFOSA-M	93		20 - 150				09/28/23 20:35	09/30/23 13:13	1
d7-N-MeFOSE-M	95		10 - 120				09/28/23 20:35	09/30/23 13:13	1
d9-N-EtFOSE-M	96		10 - 120				09/28/23 20:35	09/30/23 13:13	1
13C3 HFPO-DA	90		25 - 150				09/28/23 20:35	09/30/23 13:13	1
13C-6:2 FTCA	133		25 - 150				09/28/23 20:35	09/30/23 13:13	1
13C-8:2 FTCA	127		25 - 150				09/28/23 20:35	09/30/23 13:13	1
13C-10:2 FTCA	111		25 - 150				09/28/23 20:35	09/30/23 13:13	1
13C3-PFPPrA	98		25 - 150				09/28/23 20:35	09/30/23 13:13	1

**Client Sample ID: EQUIPMENT BLANK**

**Lab Sample ID: 320-105223-11**

Date Collected: 09/25/23 12:15

Matrix: Water

Date Received: 09/26/23 09:05

**Method: EPA 537 (modified) - Fluorinated Alkyl Substances**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	ND		1.7		ng/L		09/28/23 20:35	09/30/23 13:33	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFHpA	102		25 - 150				09/28/23 20:35	09/30/23 13:33	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND	H	4.4		ng/L		09/28/23 20:35	11/13/23 16:41	1
Perfluoropentanoic acid (PFPeA)	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
Perfluorohexanoic acid (PFHxA)	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
Perfluoroheptanoic acid (PFHpA)	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: EQUIPMENT BLANK**

**Lab Sample ID: 320-105223-11**

Date Collected: 09/25/23 12:15

Matrix: Water

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
Perfluorononanoic acid (PFNA)	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
Perfluorodecanoic acid (PFDA)	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
Perfluoroundecanoic acid (PFUnA)	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
Perfluorododecanoic acid (PFDoA)	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
Perfluorotridecanoic acid (PFTrDA)	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
Perfluorotetradecanoic acid (PFTeA)	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
Perfluoro-n-octadecanoic acid (PFODA)	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
Perfluorobutanesulfonic acid (PFBS)	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
Perfluoropentanesulfonic acid (PFPeS)	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
Perfluorohexanesulfonic acid (PFHxS)	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
Perfluoroheptanesulfonic acid (PFHpS)	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
Perfluorooctanesulfonic acid (PFOS)	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
Perfluorononanesulfonic acid (PFNS)	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
Perfluorodecanesulfonic acid (PFDS)	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
Perfluorododecanesulfonic acid (PFDoS)	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
Perfluorooctanesulfonamide (FOSA)	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	H	4.4		ng/L		09/28/23 20:35	11/13/23 16:41	1
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	H	4.4		ng/L		09/28/23 20:35	11/13/23 16:41	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	H	4.4		ng/L		09/28/23 20:35	11/13/23 16:41	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND	H	3.5		ng/L		09/28/23 20:35	11/13/23 16:41	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND	H	3.5		ng/L		09/28/23 20:35	11/13/23 16:41	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid (9Cl-PF3ONS)	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: EQUIPMENT BLANK**

**Lab Sample ID: 320-105223-11**

Date Collected: 09/25/23 12:15

Matrix: Water

Date Received: 09/26/23 09:05

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
6:2 FTCA	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
8:2 FTCA	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
10:2 FTCA	ND	H	2.6		ng/L		09/28/23 20:35	11/13/23 16:41	1
PFECHS	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
PFPPrS	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
Perfluoro-2-methoxyacetic acid (PFMOAA)	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
PFPE-1	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
PFO5DA	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
PMPA	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
PEPA	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
PFPPrA	ND	H	4.4		ng/L		09/28/23 20:35	11/13/23 16:41	1
R-EVE	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
NVHOS	ND	H	2.6		ng/L		09/28/23 20:35	11/13/23 16:41	1
Hydro-EVE Acid	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1
R-PSDCA	ND	H	2.6		ng/L		09/28/23 20:35	11/13/23 16:41	1
Hydro-PS Acid	ND	H	1.7		ng/L		09/28/23 20:35	11/13/23 16:41	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	91		25 - 150	09/28/23 20:35	11/13/23 16:41	1
13C4 PFBA	115		25 - 150	09/28/23 20:35	11/13/23 16:41	1
13C5 PFPeA	124		25 - 150	09/28/23 20:35	11/13/23 16:41	1
13C2 PFHxA	122		25 - 150	09/28/23 20:35	11/13/23 16:41	1
13C4 PFHpA	134		25 - 150	09/28/23 20:35	11/13/23 16:41	1
13C4 PFOA	107		25 - 150	09/28/23 20:35	11/13/23 16:41	1
13C5 PFNA	106		25 - 150	09/28/23 20:35	11/13/23 16:41	1
13C2 PFDA	109		25 - 150	09/28/23 20:35	11/13/23 16:41	1
13C2 PFUnA	101		25 - 150	09/28/23 20:35	11/13/23 16:41	1
13C2 PFDaA	100		25 - 150	09/28/23 20:35	11/13/23 16:41	1
13C2 PFTeDA	93		25 - 150	09/28/23 20:35	11/13/23 16:41	1
13C2 PFHxDA	90		25 - 150	09/28/23 20:35	11/13/23 16:41	1
13C3 PFBS	107		25 - 150	09/28/23 20:35	11/13/23 16:41	1
18O2 PFHxS	106		25 - 150	09/28/23 20:35	11/13/23 16:41	1
13C4 PFOS	94		25 - 150	09/28/23 20:35	11/13/23 16:41	1
d3-NMeFOSAA	97		25 - 150	09/28/23 20:35	11/13/23 16:41	1
d5-NEtFOSAA	94		25 - 150	09/28/23 20:35	11/13/23 16:41	1

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# Client Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: EQUIPMENT BLANK**

**Lab Sample ID: 320-105223-11**

Date Collected: 09/25/23 12:15

Matrix: Water

Date Received: 09/26/23 09:05

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

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
M2-4:2 FTS	108		25 - 150	09/28/23 20:35	11/13/23 16:41	1
M2-6:2 FTS	102		25 - 150	09/28/23 20:35	11/13/23 16:41	1
M2-8:2 FTS	106		25 - 150	09/28/23 20:35	11/13/23 16:41	1
13C2 10:2 FTS	106		25 - 150	09/28/23 20:35	11/13/23 16:41	1
d-N-MeFOSA-M	79		20 - 150	09/28/23 20:35	11/13/23 16:41	1
d-N-EtFOSA-M	89		20 - 150	09/28/23 20:35	11/13/23 16:41	1
d7-N-MeFOSE-M	101		10 - 120	09/28/23 20:35	11/13/23 16:41	1
d9-N-EtFOSE-M	100		10 - 120	09/28/23 20:35	11/13/23 16:41	1
13C3 HFPO-DA	123		25 - 150	09/28/23 20:35	11/13/23 16:41	1
13C-6:2 FTCA	111		25 - 150	09/28/23 20:35	11/13/23 16:41	1
13C-8:2 FTCA	96		25 - 150	09/28/23 20:35	11/13/23 16:41	1
13C-10:2 FTCA	103		25 - 150	09/28/23 20:35	11/13/23 16:41	1
13C3-PFPPrA	104		25 - 150	09/28/23 20:35	11/13/23 16:41	1

## Total Oxidation Precursors

Client: Hawaii Department of Health  
Project/Site: Background Study

TestAmerica Job ID: 320-105223-1

**Client Sample ID: KOKEE-BCKG**

**Lab Sample ID: 320-105223-1**  
Matrix: Solid

Analyte	Pre-Treatment Method			Post-Treatment Method			Difference <sup>1</sup>	
	537 (modified)			537 (modified)			Result	Unit
	Result	Qualifier	Unit	Result	Qualifier	Unit		
Perfluorobutanoic acid (PFBA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluoropentanoic acid (PFPeA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluorohexanoic acid (PFHxA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluoroheptanoic acid (PFHpA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluorooctanoic acid (PFOA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluorononanoic acid (PFNA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Total PFCA	0.00		ug/Kg	0.00		ug/Kg	0.00	ug/Kg

**Client Sample ID: ML#1-PFAS-BCKG**

**Lab Sample ID: 320-105223-2**  
Matrix: Solid

Analyte	Pre-Treatment Method			Post-Treatment Method			Difference <sup>1</sup>	
	537 (modified)			537 (modified)			Result	Unit
	Result	Qualifier	Unit	Result	Qualifier	Unit		
Perfluorobutanoic acid (PFBA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluoropentanoic acid (PFPeA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluorohexanoic acid (PFHxA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluoroheptanoic acid (PFHpA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluorooctanoic acid (PFOA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluorononanoic acid (PFNA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Total PFCA	0.00		ug/Kg	0.00		ug/Kg	0.00	ug/Kg

**Client Sample ID: KUD-PFAS-BCKG**

**Lab Sample ID: 320-105223-3**  
Matrix: Solid

Analyte	Pre-Treatment Method			Post-Treatment Method			Difference <sup>1</sup>	
	537 (modified)			537 (modified)			Result	Unit
	Result	Qualifier	Unit	Result	Qualifier	Unit		
Perfluorobutanoic acid (PFBA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluoropentanoic acid (PFPeA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluorohexanoic acid (PFHxA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluoroheptanoic acid (PFHpA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluorooctanoic acid (PFOA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluorononanoic acid (PFNA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Total PFCA	0.00		ug/Kg	0.00		ug/Kg	0.00	ug/Kg

**Client Sample ID: KALOLI POINT-BCKG**

**Lab Sample ID: 320-105223-4**  
Matrix: Solid

Analyte	Pre-Treatment Method			Post-Treatment Method			Difference <sup>1</sup>	
	537 (modified)			537 (modified)			Result	Unit
	Result	Qualifier	Unit	Result	Qualifier	Unit		
Perfluorobutanoic acid (PFBA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluoropentanoic acid (PFPeA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluorohexanoic acid (PFHxA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluoroheptanoic acid (PFHpA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluorooctanoic acid (PFOA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluorononanoic acid (PFNA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Total PFCA	0.00		ug/Kg	0.00		ug/Kg	0.00	ug/Kg

<sup>1</sup> Difference = Post-Treatment - Pre-Treatment

# Total Oxidation Precursors

Client: Hawaii Department of Health  
Project/Site: Background Study

TestAmerica Job ID: 320-105223-1

**Client Sample ID: POLI-PFAS-BCKG**

**Lab Sample ID: 320-105223-5**  
Matrix: Solid

Analyte	Pre-Treatment Method			Post-Treatment Method			Difference <sup>1</sup>	
	537 (modified)			537 (modified)			Result	Unit
	Result	Qualifier	Unit	Result	Qualifier	Unit		
Perfluorobutanoic acid (PFBA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluoropentanoic acid (PFPeA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluorohexanoic acid (PFHxA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluoroheptanoic acid (PFHpA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluorooctanoic acid (PFOA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluorononanoic acid (PFNA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Total PFCA	0.00		ug/Kg	0.00		ug/Kg	0.00	ug/Kg

**Client Sample ID: MAK-PFHI-BCKG**

**Lab Sample ID: 320-105223-6**  
Matrix: Solid

Analyte	Pre-Treatment Method			Post-Treatment Method			Difference <sup>1</sup>	
	537 (modified)			537 (modified)			Result	Unit
	Result	Qualifier	Unit	Result	Qualifier	Unit		
Perfluorobutanoic acid (PFBA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluoropentanoic acid (PFPeA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluorohexanoic acid (PFHxA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluoroheptanoic acid (PFHpA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluorooctanoic acid (PFOA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluorononanoic acid (PFNA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Total PFCA	0.00		ug/Kg	0.00		ug/Kg	0.00	ug/Kg

**Client Sample ID: MP-BCKG**

**Lab Sample ID: 320-105223-7**  
Matrix: Solid

Analyte	Pre-Treatment Method			Post-Treatment Method			Difference <sup>1</sup>	
	537 (modified)			537 (modified)			Result	Unit
	Result	Qualifier	Unit	Result	Qualifier	Unit		
Perfluorobutanoic acid (PFBA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluoropentanoic acid (PFPeA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluorohexanoic acid (PFHxA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluoroheptanoic acid (PFHpA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluorooctanoic acid (PFOA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluorononanoic acid (PFNA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Total PFCA	0.00		ug/Kg	0.00		ug/Kg	0.00	ug/Kg

**Client Sample ID: NPALI-BCKG**

**Lab Sample ID: 320-105223-8**  
Matrix: Solid

Analyte	Pre-Treatment Method			Post-Treatment Method			Difference <sup>1</sup>	
	537 (modified)			537 (modified)			Result	Unit
	Result	Qualifier	Unit	Result	Qualifier	Unit		
Perfluorobutanoic acid (PFBA)	ND		ug/Kg	1.1		ug/Kg	1.1	ug/Kg
Perfluoropentanoic acid (PFPeA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluorohexanoic acid (PFHxA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluoroheptanoic acid (PFHpA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluorooctanoic acid (PFOA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluorononanoic acid (PFNA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Total PFCA	0.00		ug/Kg	1.1		ug/Kg	1.1	ug/Kg

<sup>1</sup> Difference = Post-Treatment - Pre-Treatment

# Total Oxidation Precursors

Client: Hawaii Department of Health  
Project/Site: Background Study

TestAmerica Job ID: 320-105223-1

Client Sample ID: KP-BCKG

Lab Sample ID: 320-105223-9  
Matrix: Solid

Analyte	Pre-Treatment Method			Post-Treatment Method			Difference <sup>1</sup>	
	537 (modified)			537 (modified)			Result	Unit
	Result	Qualifier	Unit	Result	Qualifier	Unit		
Perfluorobutanoic acid (PFBA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluoropentanoic acid (PFPeA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluorohexanoic acid (PFHxA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluoroheptanoic acid (PFHpA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluorooctanoic acid (PFOA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Perfluorononanoic acid (PFNA)	ND		ug/Kg	ND		ug/Kg	0.00	ug/Kg
Total PFCA	0.00		ug/Kg	0.00		ug/Kg	0.00	ug/Kg

<sup>1</sup> Difference = Post-Treatment - Pre-Treatment

# Isotope Dilution Summary

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

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

Matrix: Solid

Prep Type: Pre-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)
320-105223-1	KOKEE-BCKG	67	81	91	85	89	87	65	64
320-105223-1 - RA2	KOKEE-BCKG								
320-105223-2	ML#1-PFAS-BCKG	108	24 *5-	88	98	93	95	95	98
320-105223-2 - RA2	ML#1-PFAS-BCKG								
320-105223-3	KUD-PFAS-BCKG	100	30	79	107	99	92	83	90
320-105223-3 - RA2	KUD-PFAS-BCKG								
320-105223-4	KALOLI POINT-BCKG	112	11 *5-	72	95	95	99	93	89
320-105223-4 - RA2	KALOLI POINT-BCKG								
320-105223-5	POLI-PFAS-BCKG	105	13 *5-	79	99	92	98	97	85
320-105223-5 - RA2	POLI-PFAS-BCKG								
320-105223-6	MAK-PFHI-BCKG	96	58	93	92	87	87	87	90
320-105223-6 - RA2	MAK-PFHI-BCKG								
320-105223-7	MP-BCKG	103	75	98	92	96	93	87	81
320-105223-7 - RA2	MP-BCKG								
320-105223-8	NPALI-BCKG	111	32	100	92	90	91	94	97
320-105223-8 - RA2	NPALI-BCKG								
320-105223-9	KP-BCKG	121	34	96	90	96	98	98	107
320-105223-9 - RA2	KP-BCKG								
LCS 320-710937/2-A	Lab Control Sample	100	85	89	92	97	93	91	94
LCS 320-710937/2-A - RA2	Lab Control Sample								
LCSD 320-710937/3-A	Lab Control Sample Dup	114	34	98	98	96	100	100	92
LCSD 320-710937/3-A - RA2	Lab Control Sample Dup								
MB 320-710937/1-A	Method Blank	101	66	92	91	91	92	90	94
MB 320-710937/1-A - RA2	Method Blank								

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFOA (25-150)	PFDoA (25-150)	PFTDA (25-150)	PFHxDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	d3NMFOS (25-150)
320-105223-1	KOKEE-BCKG	68	67	67	64	89	92	62	78
320-105223-1 - RA2	KOKEE-BCKG					84			
320-105223-2	ML#1-PFAS-BCKG	101	87	75	24 *5-	90	100	89	90
320-105223-2 - RA2	ML#1-PFAS-BCKG					92			
320-105223-3	KUD-PFAS-BCKG	99	95	96	56	103	114	89	103
320-105223-3 - RA2	KUD-PFAS-BCKG					83			
320-105223-4	KALOLI POINT-BCKG	86	84	80	47	95	101	90	59
320-105223-4 - RA2	KALOLI POINT-BCKG					88			
320-105223-5	POLI-PFAS-BCKG	99	98	98	68	92	102	94	70
320-105223-5 - RA2	POLI-PFAS-BCKG					86			
320-105223-6	MAK-PFHI-BCKG	96	86	82	65	85	91	83	75
320-105223-6 - RA2	MAK-PFHI-BCKG					82			
320-105223-7	MP-BCKG	100	89	92	72	87	97	85	76
320-105223-7 - RA2	MP-BCKG					87			
320-105223-8	NPALI-BCKG	99	83	94	29	88	97	90	82
320-105223-8 - RA2	NPALI-BCKG					84			
320-105223-9	KP-BCKG	104	96	102	48	99	106	97	90
320-105223-9 - RA2	KP-BCKG					84			
LCS 320-710937/2-A	Lab Control Sample	101	94	108	76	92	102	91	85
LCS 320-710937/2-A - RA2	Lab Control Sample					89			
LCSD 320-710937/3-A	Lab Control Sample Dup	105	112	124	83	95	105	99	90

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# Isotope Dilution Summary

Client: Hawaii Department of Health  
 Project/Site: Background Study

Job ID: 320-105223-1

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

Matrix: Solid

Prep Type: Pre-Treatment

		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)	d3NMFOS (25-150)
LCS 320-710937/3-A - RA2	Lab Control Sample Dup					81			
MB 320-710937/1-A	Method Blank	99	93	108	78	88	101	88	81
MB 320-710937/1-A - RA2	Method Blank					81			
		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	d5NEFOS (25-150)	M262FTS (25-150)	M282FTS (25-150)	M102FTS (25-150)	dMeFOSA (25-150)	dEtFOSA (25-150)	NMFM (25-150)	NEFM (25-150)
320-105223-1	KOKEE-BCKG	79	144	133	103	58	64	60	56
320-105223-1 - RA2	KOKEE-BCKG								
320-105223-2	ML#1-PFAS-BCKG	100	111	135	106	87	86	65	62
320-105223-2 - RA2	ML#1-PFAS-BCKG								
320-105223-3	KUD-PFAS-BCKG	113	150	199 *5+	146	96	92	74	71
320-105223-3 - RA2	KUD-PFAS-BCKG								
320-105223-4	KALOLI POINT-BCKG	80	98	127	104	92	92	60	60
320-105223-4 - RA2	KALOLI POINT-BCKG								
320-105223-5	POLI-PFAS-BCKG	94	106	126	118	89	78	68	68
320-105223-5 - RA2	POLI-PFAS-BCKG								
320-105223-6	MAK-PFHI-BCKG	94	103	124	92	77	70	60	59
320-105223-6 - RA2	MAK-PFHI-BCKG								
320-105223-7	MP-BCKG	86	105	109	105	74	64	70	64
320-105223-7 - RA2	MP-BCKG								
320-105223-8	NPALI-BCKG	87	108	130	80	89	70	64	56
320-105223-8 - RA2	NPALI-BCKG								
320-105223-9	KP-BCKG	92	107	124	97	92	100	79	69
320-105223-9 - RA2	KP-BCKG								
LCS 320-710937/2-A	Lab Control Sample	86	92	100	106	81	77	83	69
LCS 320-710937/2-A - RA2	Lab Control Sample								
LCS 320-710937/3-A	Lab Control Sample Dup	94	102	103	106	96	90	92	91
LCS 320-710937/3-A - RA2	Lab Control Sample Dup								
MB 320-710937/1-A	Method Blank	91	96	111	101	86	86	84	83
MB 320-710937/1-A - RA2	Method Blank								
		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	HFPODA (25-150)	MFHEA (25-150)	MFOEA (25-150)	MFDEA (25-150)				
320-105223-1	KOKEE-BCKG	73	67	53	42				
320-105223-1 - RA2	KOKEE-BCKG								
320-105223-2	ML#1-PFAS-BCKG	76	76	76	72				
320-105223-2 - RA2	ML#1-PFAS-BCKG								
320-105223-3	KUD-PFAS-BCKG	83	70	69	69				
320-105223-3 - RA2	KUD-PFAS-BCKG								
320-105223-4	KALOLI POINT-BCKG	74	67	72	73				
320-105223-4 - RA2	KALOLI POINT-BCKG								
320-105223-5	POLI-PFAS-BCKG	80	75	69	72				
320-105223-5 - RA2	POLI-PFAS-BCKG								
320-105223-6	MAK-PFHI-BCKG	73	75	63	64				
320-105223-6 - RA2	MAK-PFHI-BCKG								
320-105223-7	MP-BCKG	76	75	69	68				
320-105223-7 - RA2	MP-BCKG								
320-105223-8	NPALI-BCKG	80	77	74	70				

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# Isotope Dilution Summary

Client: Hawaii Department of Health  
 Project/Site: Background Study

Job ID: 320-105223-1

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

Matrix: Solid

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)	MFDEA (25-150)
320-105223-8 - RA2	NPALI-BCKG				
320-105223-9	KP-BCKG	85	83	74	75
320-105223-9 - RA2	KP-BCKG				
LCS 320-710937/2-A	Lab Control Sample	79	76	68	62
LCS 320-710937/2-A - RA2	Lab Control Sample				
LCSD 320-710937/3-A	Lab Control Sample Dup	86	82	76	73
LCSD 320-710937/3-A - RA2	Lab Control Sample Dup				
MB 320-710937/1-A	Method Blank	78	79	68	76
MB 320-710937/1-A - RA2	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  
 d3NMFOS = d3-NMeFOSAA  
 d5NEFOS = d5-NEtFOSAA  
 M262FTS = M2-6:2 FTS  
 M282FTS = M2-8:2 FTS  
 M102FTS = 13C2 10:2 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  
 MFDEA = 13C-10:2 FTCA

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

Matrix: Solid

Prep Type: Pre-Treatment

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)
		M242FTS (25-150)
320-105223-1 - RA	KOKEE-BCKG	126
320-105223-2 - RA	ML#1-PFAS-BCKG	97
320-105223-3 - RA	KUD-PFAS-BCKG	163 *5+
320-105223-4 - RA	KALOLI POINT-BCKG	90

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# Isotope Dilution Summary

Client: Hawaii Department of Health  
 Project/Site: Background Study

Job ID: 320-105223-1

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

Matrix: Solid

Prep Type: Pre-Treatment

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		M242FTS							
Lab Sample ID	Client Sample ID	(25-150)							
320-105223-5 - RA	POLI-PFAS-BCKG	128							
320-105223-6 - RA	MAK-PFHI-BCKG	117							
320-105223-7 - RA	MP-BCKG	112							
320-105223-8 - RA	NPALI-BCKG	111							
320-105223-9 - RA	KP-BCKG	119							
LCS 320-710937/2-A - RA	Lab Control Sample	111							
LCSD 320-710937/3-A - RA	Lab Control Sample Dup	107							
MB 320-710937/1-A - RA	Method Blank	108							
<b>Surrogate Legend</b>									
M242FTS = M2-4:2 FTS									

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

Matrix: Solid

Prep Type: Post-Treatment

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFOSA	PFBA	PFPeA	PFHxA	C4PFHA	PFOA	PFNA	PFDA
Lab Sample ID	Client Sample ID	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)
320-105223-1	KOKEE-BCKG	89	62	98	98	97	94	94	89
320-105223-1 - RA	KOKEE-BCKG								
320-105223-1 - RA2	KOKEE-BCKG								
320-105223-2	ML#1-PFAS-BCKG	99	27	98	92	89	86	85	89
320-105223-2 - RA	ML#1-PFAS-BCKG								
320-105223-2 - RA2	ML#1-PFAS-BCKG								
320-105223-3	KUD-PFAS-BCKG	95	79	92	92	89	91	87	87
320-105223-3 - RA	KUD-PFAS-BCKG								
320-105223-4	KALOLI POINT-BCKG	76	91	93	85	91	92	82	84
320-105223-4 - RA	KALOLI POINT-BCKG								
320-105223-5	POLI-PFAS-BCKG					97			
320-105223-5 - RE	POLI-PFAS-BCKG	78	96	93	97	108	88	94	87
320-105223-6	MAK-PFHI-BCKG	92	26	94	94	95	94	88	84
320-105223-6 - RA	MAK-PFHI-BCKG								
320-105223-7	MP-BCKG	97	68	98	95	90	92	83	86
320-105223-7 - RA	MP-BCKG								
320-105223-8	NPALI-BCKG	92	90	103	98	91	94	91	81
320-105223-8 - RA	NPALI-BCKG								
320-105223-9	KP-BCKG	97	28	99	99	94	97	90	94
320-105223-9 - RA	KP-BCKG								
LCS 320-710936/2-A	Lab Control Sample	106	96	104	97	98	98	98	100
LCS 320-710936/2-A - RA	Lab Control Sample								
LCS 320-710936/2-A - RA2	Lab Control Sample								
LCS 320-722691/2-A	Lab Control Sample	93	100	93	93	112	99	106	103
LCSD 320-710936/3-A	Lab Control Sample Dup	107	55	102	97	92	93	92	99
LCSD 320-710936/3-A - RA	Lab Control Sample Dup								
LCSD 320-710936/3-A - RA2	Lab Control Sample Dup								
LCSD 320-722691/3-A	Lab Control Sample Dup	92	103	106	107	123	107	110	110
MB 320-710936/1-A	Method Blank	91	60	95	94	92	93	89	78
MB 320-710936/1-A - RA	Method Blank								
MB 320-710936/1-A - RA2	Method Blank								
MB 320-722691/1-A	Method Blank	101	99	101	102	115	106	117	108

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# Isotope Dilution Summary

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

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

Matrix: Solid

Prep Type: Post-Treatment

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PfUnA (25-150)	PfDoA (25-150)	PfTDA (25-150)	PfHxDA (25-150)	C3PFBS (25-150)	PfHxS (25-150)	PfOS (25-150)	d3NMfOS (25-150)
320-105223-1	KOKEE-BCKG	90	91	84	78	91	100	83	100
320-105223-1 - RA	KOKEE-BCKG								
320-105223-1 - RA2	KOKEE-BCKG					81			
320-105223-2	ML#1-PFAS-BCKG	91	90	102	79	91	98	82	94
320-105223-2 - RA	ML#1-PFAS-BCKG								
320-105223-2 - RA2	ML#1-PFAS-BCKG					82			
320-105223-3	KUD-PFAS-BCKG	88	89	92	77	85	92	80	102
320-105223-3 - RA	KUD-PFAS-BCKG					87			
320-105223-4	KALOLI POINT-BCKG	85	85	85	76	89	98	78	98
320-105223-4 - RA	KALOLI POINT-BCKG					85			
320-105223-5	POLI-PFAS-BCKG							93	
320-105223-5 - RE	POLI-PFAS-BCKG	71	65	72	82	90	96	86	70
320-105223-6	MAK-PFHI-BCKG	88	93	100	80	85	94	82	102
320-105223-6 - RA	MAK-PFHI-BCKG					86			
320-105223-7	MP-BCKG	88	98	100	90	92	98	84	100
320-105223-7 - RA	MP-BCKG					90			
320-105223-8	NPALI-BCKG	91	99	96	79	93	103	88	93
320-105223-8 - RA	NPALI-BCKG					85			
320-105223-9	KP-BCKG	97	95	113	94	91	103	84	110
320-105223-9 - RA	KP-BCKG					86			
LCS 320-710936/2-A	Lab Control Sample	104	108	119	97	100	104	100	119
LCS 320-710936/2-A - RA	Lab Control Sample								
LCS 320-710936/2-A - RA2	Lab Control Sample					87			
LCS 320-722691/2-A	Lab Control Sample	105	92	89	104	92	96	97	111
LCS 320-710936/3-A	Lab Control Sample Dup	106	99	101	92	95	99	96	117
LCS 320-710936/3-A - RA	Lab Control Sample Dup								
LCS 320-710936/3-A - RA2	Lab Control Sample Dup					88			
LCS 320-722691/3-A	Lab Control Sample Dup	117	108	88	123	103	105	103	117
MB 320-710936/1-A	Method Blank	97	90	101	91	87	96	84	99
MB 320-710936/1-A - RA	Method Blank								
MB 320-710936/1-A - RA2	Method Blank					83			
MB 320-722691/1-A	Method Blank	114	100	79	99	104	106	108	112

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		d5NEFOS (25-150)	M242FTS (0-10)	M262FTS (25-150)	M282FTS (25-150)	M102FTS (25-150)	dMeFOSA (25-150)	dEtFOSA (25-150)	NMFM (25-150)
320-105223-1	KOKEE-BCKG	115	0	117	108	111	84	72	72
320-105223-1 - RA	KOKEE-BCKG								
320-105223-1 - RA2	KOKEE-BCKG								
320-105223-2	ML#1-PFAS-BCKG	110	0	109	100	96	87	92	79
320-105223-2 - RA	ML#1-PFAS-BCKG								
320-105223-2 - RA2	ML#1-PFAS-BCKG								
320-105223-3	KUD-PFAS-BCKG	118	0	108	104	109	72	73	75
320-105223-3 - RA	KUD-PFAS-BCKG								
320-105223-4	KALOLI POINT-BCKG	99	0	108	102	97	61	69	74
320-105223-4 - RA	KALOLI POINT-BCKG								
320-105223-5	POLI-PFAS-BCKG								
320-105223-5 - RE	POLI-PFAS-BCKG	74	0	101	107	78	49	39	65
320-105223-6	MAK-PFHI-BCKG	113	0	108	103	98	86	82	76
320-105223-6 - RA	MAK-PFHI-BCKG								

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# Isotope Dilution Summary

Client: Hawaii Department of Health  
 Project/Site: Background Study

Job ID: 320-105223-1

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

Matrix: Solid

Prep Type: Post-Treatment

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		d5NEFOS (25-150)	M242FTS (0-10)	M262FTS (25-150)	M282FTS (25-150)	M102FTS (25-150)	dMeFOSA (25-150)	dEtFOSA (25-150)	NMFM (25-150)
320-105223-7	MP-BCKG	110	0	115	121	115	82	75	77
320-105223-7 - RA	MP-BCKG								
320-105223-8	NPALI-BCKG	106	0	114	103	115	71	74	74
320-105223-8 - RA	NPALI-BCKG								
320-105223-9	KP-BCKG	120	0	116	117	131	89	89	81
320-105223-9 - RA	KP-BCKG								
LCS 320-710936/2-A	Lab Control Sample	128	0	120	115	107	85	77	89
LCS 320-710936/2-A - RA	Lab Control Sample								
LCS 320-710936/2-A - RA2	Lab Control Sample								
LCS 320-722691/2-A	Lab Control Sample	102	0	118	131	102	66	66	87
LCS 320-710936/3-A	Lab Control Sample Dup	112	0	116	125	102	87	91	84
LCS 320-710936/3-A - RA	Lab Control Sample Dup								
LCS 320-710936/3-A - RA2	Lab Control Sample Dup								
LCS 320-722691/3-A	Lab Control Sample Dup	114	0	129	130	98	79	77	98
MB 320-710936/1-A	Method Blank	109	0	98	99	95	78	77	76
MB 320-710936/1-A - RA	Method Blank								
MB 320-710936/1-A - RA2	Method Blank								
MB 320-722691/1-A	Method Blank	125	0	115	132	116	76	88	98

  

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)				
		NEFM (25-150)	HFPODA (25-150)	MFHEA (25-150)	MFOEA (25-150)	MFDEA (25-150)
320-105223-1	KOKEE-BCKG	55	84	83	82	94
320-105223-1 - RA	KOKEE-BCKG				74	
320-105223-1 - RA2	KOKEE-BCKG					
320-105223-2	ML#1-PFAS-BCKG	75	87	73	77	81
320-105223-2 - RA	ML#1-PFAS-BCKG				76	
320-105223-2 - RA2	ML#1-PFAS-BCKG					
320-105223-3	KUD-PFAS-BCKG	74	83	76	85	84
320-105223-3 - RA	KUD-PFAS-BCKG					
320-105223-4	KALOLI POINT-BCKG	71	86	76	72	70
320-105223-4 - RA	KALOLI POINT-BCKG					
320-105223-5	POLI-PFAS-BCKG			76		
320-105223-5 - RE	POLI-PFAS-BCKG	56	92	92	93	91
320-105223-6	MAK-PFHI-BCKG	77	89	81	80	89
320-105223-6 - RA	MAK-PFHI-BCKG					
320-105223-7	MP-BCKG	75	84	74	84	85
320-105223-7 - RA	MP-BCKG					
320-105223-8	NPALI-BCKG	77	89	82	72	84
320-105223-8 - RA	NPALI-BCKG					
320-105223-9	KP-BCKG	76	88	86	80	102
320-105223-9 - RA	KP-BCKG					
LCS 320-710936/2-A	Lab Control Sample	87	91	84	97	91
LCS 320-710936/2-A - RA	Lab Control Sample				88	
LCS 320-710936/2-A - RA2	Lab Control Sample					
LCS 320-722691/2-A	Lab Control Sample	96	89	113	115	100
LCS 320-710936/3-A	Lab Control Sample Dup	79	83	78	87	101
LCS 320-710936/3-A - RA	Lab Control Sample Dup				81	
LCS 320-710936/3-A - RA2	Lab Control Sample Dup					

# Isotope Dilution Summary

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

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

Matrix: Solid

Prep Type: Post-Treatment

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)				
		NEFM (25-150)	HFPODA (25-150)	MFHEA (25-150)	MFOEA (25-150)	MFDEA (25-150)
LCS D 320-722691/3-A	Lab Control Sample Dup	81	117	96	103	148
MB 320-710936/1-A	Method Blank	70	77	72	81	88
MB 320-710936/1-A - RA	Method Blank				78	
MB 320-710936/1-A - RA2	Method Blank					
MB 320-722691/1-A	Method Blank	74	99	105	118	120

### 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  
 d3NMFOS = d3-NMeFOSAA  
 d5NEFOS = d5-NEtFOSAA  
 M242FTS = M2-4:2 FTS  
 M262FTS = M2-6:2 FTS  
 M282FTS = M2-8:2 FTS  
 M102FTS = 13C2 10:2 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  
 MFDEA = 13C-10:2 FTCA

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

Matrix: Water

Prep Type: Total/NA

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)
320-105223-10	SOURCE BLANK	114	102	121	107	107	106	107	111
320-105223-11	EQUIPMENT BLANK					102			
320-105223-11 - RA	EQUIPMENT BLANK	91	115	124	122	134	107	106	109
LCS 320-709746/2-A	Lab Control Sample	93	84	106	87	90	89	90	92
LCS D 320-709746/3-A	Lab Control Sample Dup	103	94	116	98	103	98	100	104
MB 320-709746/1-A	Method Blank	104	97	112	83	98	97	94	98

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# Isotope Dilution Summary

Client: Hawaii Department of Health  
 Project/Site: Background Study

Job ID: 320-105223-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFUnA (25-150)	PFD <sub>o</sub> A (25-150)	PFTDA (25-150)	PFHxDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	d3NMFOS (25-150)
320-105223-10	SOURCE BLANK	102	105	103	85	109	87	98	79
320-105223-11	EQUIPMENT BLANK								
320-105223-11 - RA	EQUIPMENT BLANK	101	100	93	90	107	106	94	97
LCS 320-709746/2-A	Lab Control Sample	85	86	81	66	92	80	83	71
LCS 320-709746/3-A	Lab Control Sample Dup	94	94	85	73	101	87	91	76
MB 320-709746/1-A	Method Blank	96	96	92	72	102	82	90	76

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		d5NEFOS (25-150)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)	M102FTS (25-150)	dMeFOSA (20-150)	dEtFOSA (20-150)	NMFM (10-120)
320-105223-10	SOURCE BLANK	89	78	89	84	102	89	93	95
320-105223-11	EQUIPMENT BLANK								
320-105223-11 - RA	EQUIPMENT BLANK	94	108	102	106	106	79	89	101
LCS 320-709746/2-A	Lab Control Sample	70	73	64	76	72	71	71	76
LCS 320-709746/3-A	Lab Control Sample Dup	77	84	79	107	99	82	84	81
MB 320-709746/1-A	Method Blank	85	81	71	84	87	75	77	87

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)					
		NEFM (10-120)	HFPODA (25-150)	MFHEA (25-150)	MFOEA (25-150)	MFDEA (25-150)	13C3PFPrA (25-150)
320-105223-10	SOURCE BLANK	96	90	133	127	111	98
320-105223-11	EQUIPMENT BLANK						
320-105223-11 - RA	EQUIPMENT BLANK	100	123	111	96	103	104
LCS 320-709746/2-A	Lab Control Sample	80	75	121	101	87	87
LCS 320-709746/3-A	Lab Control Sample Dup	84	84	121	125	97	98
MB 320-709746/1-A	Method Blank	89	82	123	126	114	91

### 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
- PFD<sub>o</sub>A = 13C2 PFD<sub>o</sub>A
- PFTDA = 13C2 PFTeDA
- PFHxDA = 13C2 PFHxDA
- C3PFBS = 13C3 PFBS
- PFHxS = 18O2 PFHxS
- PFOS = 13C4 PFOS
- d3NMFOS = d3-NMeFOSAA
- d5NEFOS = d5-NEtFOSAA
- M242FTS = M2-4:2 FTS
- M262FTS = M2-6:2 FTS
- M282FTS = M2-8:2 FTS
- M102FTS = 13C2 10:2 FTS
- dMeFOSA = d-N-MeFOSA-M
- dEtFOSA = d-N-EtFOSA-M
- NMFM = d7-N-MeFOSE-M

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# Isotope Dilution Summary

Client: Hawaii Department of Health  
Project/Site: Background Study

NEFM = d9-N-EtFOSE-M  
HFPODA = 13C3 HFPO-DA  
MFHEA = 13C-6:2 FTCA  
MFOEA = 13C-8:2 FTCA  
MFDEA = 13C-10:2 FTCA  
13C3PFPrA = 13C3-PFPrA

Job ID: 320-105223-1

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# QC Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

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

**Lab Sample ID: MB 320-709746/1-A**  
**Matrix: Water**  
**Analysis Batch: 710118**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 709746**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorobutanoic acid (PFBA)	ND		5.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
Perfluoropentanoic acid (PFPeA)	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
Perfluorohexanoic acid (PFHxA)	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
Perfluorooctanoic acid (PFOA)	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
Perfluorononanoic acid (PFNA)	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
Perfluorodecanoic acid (PFDA)	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
Perfluorododecanoic acid (PFDoA)	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
Perfluorotridecanoic acid (PFTTrDA)	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
Perfluorotetradecanoic acid (PFTTeA)	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
Perfluoro-n-octadecanoic acid (PFODA)	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
Perfluorononanesulfonic acid (PFNS)	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
Perfluorododecanesulfonic acid (PFDoS)	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
Perfluorooctanesulfonamide (FOSA)	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		5.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		5.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		5.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		4.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		4.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid (9CI-PF3ONS)	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1

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# QC Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

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

Lab Sample ID: MB 320-709746/1-A

Matrix: Water

Analysis Batch: 710118

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 709746

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
6:2 FTCA	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
8:2 FTCA	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
10:2 FTCA	ND		3.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
PFECHS	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
PFPrS	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
Perfluoro-2-methoxyacetic acid (PFMOAA)	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
PFPE-1	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
PFO5DA	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
PMPA	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
PEPA	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
PFPrA	ND		5.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
R-EVE	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
NVHOS	ND		3.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
Hydro-EVE Acid	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
R-PSDCA	ND		3.0		ng/L		09/28/23 20:35	09/30/23 11:40	1
Hydro-PS Acid	ND		2.0		ng/L		09/28/23 20:35	09/30/23 11:40	1

Isotope Dilution	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C8 FOSA	104		25 - 150	09/28/23 20:35	09/30/23 11:40	1
13C4 PFBA	97		25 - 150	09/28/23 20:35	09/30/23 11:40	1
13C5 PFPeA	112		25 - 150	09/28/23 20:35	09/30/23 11:40	1
13C2 PFHxA	83		25 - 150	09/28/23 20:35	09/30/23 11:40	1
13C4 PFHpA	98		25 - 150	09/28/23 20:35	09/30/23 11:40	1
13C4 PFOA	97		25 - 150	09/28/23 20:35	09/30/23 11:40	1
13C5 PFNA	94		25 - 150	09/28/23 20:35	09/30/23 11:40	1
13C2 PFDA	98		25 - 150	09/28/23 20:35	09/30/23 11:40	1
13C2 PFUnA	96		25 - 150	09/28/23 20:35	09/30/23 11:40	1

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# QC Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

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

Lab Sample ID: MB 320-709746/1-A

Matrix: Water

Analysis Batch: 710118

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 709746

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C2 PFDoA	96		25 - 150	09/28/23 20:35	09/30/23 11:40	1
13C2 PFTeDA	92		25 - 150	09/28/23 20:35	09/30/23 11:40	1
13C2 PFHxDA	72		25 - 150	09/28/23 20:35	09/30/23 11:40	1
13C3 PFBS	102		25 - 150	09/28/23 20:35	09/30/23 11:40	1
18O2 PFHxS	82		25 - 150	09/28/23 20:35	09/30/23 11:40	1
13C4 PFOS	90		25 - 150	09/28/23 20:35	09/30/23 11:40	1
d3-NMeFOSAA	76		25 - 150	09/28/23 20:35	09/30/23 11:40	1
d5-NEtFOSAA	85		25 - 150	09/28/23 20:35	09/30/23 11:40	1
M2-4:2 FTS	81		25 - 150	09/28/23 20:35	09/30/23 11:40	1
M2-6:2 FTS	71		25 - 150	09/28/23 20:35	09/30/23 11:40	1
M2-8:2 FTS	84		25 - 150	09/28/23 20:35	09/30/23 11:40	1
13C2 10:2 FTS	87		25 - 150	09/28/23 20:35	09/30/23 11:40	1
d-N-MeFOSA-M	75		20 - 150	09/28/23 20:35	09/30/23 11:40	1
d-N-EtFOSA-M	77		20 - 150	09/28/23 20:35	09/30/23 11:40	1
d7-N-MeFOSE-M	87		10 - 120	09/28/23 20:35	09/30/23 11:40	1
d9-N-EtFOSE-M	89		10 - 120	09/28/23 20:35	09/30/23 11:40	1
13C3 HFPO-DA	82		25 - 150	09/28/23 20:35	09/30/23 11:40	1
13C-6:2 FTCA	123		25 - 150	09/28/23 20:35	09/30/23 11:40	1
13C-8:2 FTCA	126		25 - 150	09/28/23 20:35	09/30/23 11:40	1
13C-10:2 FTCA	114		25 - 150	09/28/23 20:35	09/30/23 11:40	1
13C3-PFPPrA	91		25 - 150	09/28/23 20:35	09/30/23 11:40	1

Lab Sample ID: LCS 320-709746/2-A

Matrix: Water

Analysis Batch: 710118

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 709746

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoropentanoic acid (PFPeA)	40.0	35.9		ng/L		90	71 - 131
Perfluorohexanoic acid (PFHxA)	40.0	37.8		ng/L		94	73 - 133
Perfluoroheptanoic acid (PFHpA)	40.0	40.5		ng/L		101	72 - 132
Perfluorooctanoic acid (PFOA)	40.0	36.8		ng/L		92	70 - 130
Perfluorononanoic acid (PFNA)	40.0	37.5		ng/L		94	75 - 135
Perfluorodecanoic acid (PFDA)	40.0	41.2		ng/L		103	76 - 136
Perfluoroundecanoic acid (PFUnA)	40.0	40.6		ng/L		102	68 - 128
Perfluorododecanoic acid (PFDoA)	40.0	42.8		ng/L		107	71 - 131
Perfluorotridecanoic acid (PFTrDA)	40.0	39.7		ng/L		99	71 - 131
Perfluorotetradecanoic acid (PFTeA)	40.0	38.5		ng/L		96	70 - 130
Perfluoro-n-hexadecanoic acid (PFHxDA)	40.0	43.7		ng/L		109	76 - 136
Perfluoro-n-octadecanoic acid (PFODA)	40.0	30.1		ng/L		75	58 - 145
Perfluorobutanesulfonic acid (PFBS)	35.5	35.6		ng/L		100	67 - 127
Perfluoropentanesulfonic acid (PFPeS)	37.6	31.8		ng/L		85	66 - 126

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# QC Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

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

Lab Sample ID: LCS 320-709746/2-A

Matrix: Water

Analysis Batch: 710118

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 709746

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorohexanesulfonic acid (PFHxS)	36.5	32.1		ng/L		88	59 - 119
Perfluoroheptanesulfonic acid (PFHpS)	38.2	33.3		ng/L		87	76 - 136
Perfluorooctanesulfonic acid (PFOS)	37.2	34.7		ng/L		93	70 - 130
Perfluorononanesulfonic acid (PFNS)	38.5	37.5		ng/L		97	75 - 135
Perfluorodecanesulfonic acid (PFDS)	38.6	34.0		ng/L		88	71 - 131
Perfluorododecanesulfonic acid (PFDoS)	38.8	33.2		ng/L		85	67 - 127
Perfluorooctanesulfonamide (FOSA)	40.0	35.4		ng/L		88	73 - 133
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	40.0	35.7		ng/L		89	76 - 136
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	40.0	39.8		ng/L		99	76 - 136
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	37.5	40.5		ng/L		108	79 - 139
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	38.1	36.8		ng/L		97	59 - 175
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	38.4	39.9		ng/L		104	75 - 135
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	38.6	36.3		ng/L		94	64 - 142
N-ethylperfluorooctane sulfonamide (NEtFOSA)	40.0	36.7		ng/L		92	78 - 138
N-methylperfluorooctane sulfonamide (NMeFOSA)	40.0	39.9		ng/L		100	67 - 154
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	40.0	37.6		ng/L		94	70 - 130
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	40.0	34.2		ng/L		86	71 - 131
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	40.0	41.1		ng/L		103	51 - 173
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	37.4	36.6		ng/L		98	75 - 135
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	37.8	35.1		ng/L		93	54 - 114
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	41.1		ng/L		109	79 - 139
3-Perfluoropropylpropanoic acid (3:3 FTCA)	40.0	36.3		ng/L		91	70 - 130
3-Perfluoropentylpropanoic acid (5:3 FTCA)	40.0	31.1		ng/L		78	70 - 130
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	40.0	30.5		ng/L		76	70 - 130
6:2 FTCA	40.0	32.5		ng/L		81	70 - 130
8:2 FTCA	40.0	30.8		ng/L		77	70 - 130
10:2 FTCA	40.0	31.1		ng/L		78	70 - 130

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# QC Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

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

Lab Sample ID: LCS 320-709746/2-A

Matrix: Water

Analysis Batch: 710118

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 709746

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
PFECHS	37.0	30.1		ng/L		81	70 - 130
PFPrS	36.8	33.9		ng/L		92	70 - 130
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	40.0	43.1		ng/L		108	70 - 130
Perfluoro-4-methoxybutanoic acid (PFMBA)	40.0	39.5		ng/L		99	70 - 130
Perfluoro-3-methoxypropanoic acid (PFMPA)	40.0	32.6		ng/L		81	70 - 130
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	35.7	36.5		ng/L		102	70 - 130
PFPrA	40.0	38.2		ng/L		96	70 - 130

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C8 FOSA	93		25 - 150
13C4 PFBA	84		25 - 150
13C5 PFPeA	106		25 - 150
13C2 PFHxA	87		25 - 150
13C4 PFHpA	90		25 - 150
13C4 PFOA	89		25 - 150
13C5 PFNA	90		25 - 150
13C2 PFDA	92		25 - 150
13C2 PFUnA	85		25 - 150
13C2 PFDoA	86		25 - 150
13C2 PFTeDA	81		25 - 150
13C2 PFHxDA	66		25 - 150
13C3 PFBS	92		25 - 150
18O2 PFHxS	80		25 - 150
13C4 PFOS	83		25 - 150
d3-NMeFOSAA	71		25 - 150
d5-NEtFOSAA	70		25 - 150
M2-4:2 FTS	73		25 - 150
M2-6:2 FTS	64		25 - 150
M2-8:2 FTS	76		25 - 150
13C2 10:2 FTS	72		25 - 150
d-N-MeFOSA-M	71		20 - 150
d-N-EtFOSA-M	71		20 - 150
d7-N-MeFOSE-M	76		10 - 120
d9-N-EtFOSE-M	80		10 - 120
13C3 HFPO-DA	75		25 - 150
13C-6:2 FTCA	121		25 - 150
13C-8:2 FTCA	101		25 - 150
13C-10:2 FTCA	87		25 - 150
13C3-PFPrA	87		25 - 150

Lab Sample ID: LCSD 320-709746/3-A

Matrix: Water

Analysis Batch: 710118

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 709746

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	
								RPD	Limit
Perfluorobutanoic acid (PFBA)	40.0	42.2		ng/L		106	76 - 136	9	30

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# QC Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

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

Lab Sample ID: LCSD 320-709746/3-A

Matrix: Water

Analysis Batch: 710118

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 709746

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
Perfluoropentanoic acid (PFPeA)	40.0	37.0		ng/L		92	71 - 131	3	30	
Perfluorohexanoic acid (PFHxA)	40.0	40.0		ng/L		100	73 - 133	6	30	
Perfluoroheptanoic acid (PFHpA)	40.0	41.4		ng/L		104	72 - 132	2	30	
Perfluorooctanoic acid (PFOA)	40.0	37.8		ng/L		95	70 - 130	3	30	
Perfluorononanoic acid (PFNA)	40.0	38.3		ng/L		96	75 - 135	2	30	
Perfluorodecanoic acid (PFDA)	40.0	39.6		ng/L		99	76 - 136	4	30	
Perfluoroundecanoic acid (PFUnA)	40.0	44.1		ng/L		110	68 - 128	8	30	
Perfluorododecanoic acid (PFDoA)	40.0	40.6		ng/L		101	71 - 131	5	30	
Perfluorotridecanoic acid (PFTrDA)	40.0	41.7		ng/L		104	71 - 131	5	30	
Perfluorotetradecanoic acid (PFTeA)	40.0	40.0		ng/L		100	70 - 130	4	30	
Perfluoro-n-hexadecanoic acid (PFHxDA)	40.0	43.4		ng/L		108	76 - 136	1	30	
Perfluoro-n-octadecanoic acid (PFODA)	40.0	36.8		ng/L		92	58 - 145	20	30	
Perfluorobutanesulfonic acid (PFBS)	35.5	36.5		ng/L		103	67 - 127	3	30	
Perfluoropentanesulfonic acid (PFPeS)	37.6	34.1		ng/L		91	66 - 126	7	30	
Perfluorohexanesulfonic acid (PFHxS)	36.5	33.6		ng/L		92	59 - 119	4	30	
Perfluoroheptanesulfonic acid (PFHpS)	38.2	36.1		ng/L		95	76 - 136	8	30	
Perfluorooctanesulfonic acid (PFOS)	37.2	37.6		ng/L		101	70 - 130	8	30	
Perfluorononanesulfonic acid (PFNS)	38.5	38.5		ng/L		100	75 - 135	3	30	
Perfluorodecanesulfonic acid (PFDS)	38.6	37.8		ng/L		98	71 - 131	11	30	
Perfluorododecanesulfonic acid (PFDoS)	38.8	37.1		ng/L		96	67 - 127	11	30	
Perfluorooctanesulfonamide (FOSA)	40.0	36.8		ng/L		92	73 - 133	4	30	
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	40.0	40.5		ng/L		101	76 - 136	13	30	
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	40.0	38.7		ng/L		97	76 - 136	3	30	
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	37.5	34.7		ng/L		92	79 - 139	15	30	
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	38.1	41.7		ng/L		110	59 - 175	13	30	
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	38.4	37.5		ng/L		98	75 - 135	6	30	
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	38.6	33.8		ng/L		88	64 - 142	7	30	
N-ethylperfluorooctane sulfonamide (NEtFOSA)	40.0	38.8		ng/L		97	78 - 138	6	30	
N-methylperfluorooctane sulfonamide (NMeFOSA)	40.0	41.4		ng/L		104	67 - 154	4	30	

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# QC Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

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

Lab Sample ID: LCSD 320-709746/3-A

Matrix: Water

Analysis Batch: 710118

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 709746

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	40.0	41.3		ng/L		103	70 - 130	9	30
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	40.0	37.3		ng/L		93	71 - 131	9	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	40.0	41.4		ng/L		103	51 - 173	1	30
9-Chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	37.4	39.4		ng/L		105	75 - 135	7	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	37.8	37.0		ng/L		98	54 - 114	5	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	42.3		ng/L		112	79 - 139	3	30
3-Perfluoropropylpropanoic acid (3:3 FTCA)	40.0	36.4		ng/L		91	70 - 130	0	30
3-Perfluoropentylpropanoic acid (5:3 FTCA)	40.0	35.3		ng/L		88	70 - 130	13	30
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	40.0	28.3		ng/L		71	70 - 130	7	30
6:2 FTCA	40.0	32.0		ng/L		80	70 - 130	1	30
8:2 FTCA	40.0	30.4		ng/L		76	70 - 130	1	30
10:2 FTCA	40.0	35.9		ng/L		90	70 - 130	15	30
PFECHS	37.0	32.6		ng/L		88	70 - 130	8	30
PFPpS	36.8	34.6		ng/L		94	70 - 130	2	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	40.0	40.5		ng/L		101	70 - 130	6	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	40.0	41.4		ng/L		103	70 - 130	5	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	40.0	34.2		ng/L		85	70 - 130	5	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	35.7	40.1		ng/L		112	70 - 130	10	30
PFPpA	40.0	38.6		ng/L		96	70 - 130	1	30

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
13C8 FOSA	103		25 - 150
13C4 PFBA	94		25 - 150
13C5 PFPeA	116		25 - 150
13C2 PFHxA	98		25 - 150
13C4 PFHpA	103		25 - 150
13C4 PFOA	98		25 - 150
13C5 PFNA	100		25 - 150
13C2 PFDA	104		25 - 150
13C2 PFUnA	94		25 - 150
13C2 PFDoA	94		25 - 150
13C2 PFTeDA	85		25 - 150
13C2 PFHxDA	73		25 - 150
13C3 PFBS	101		25 - 150
18O2 PFHxS	87		25 - 150
13C4 PFOS	91		25 - 150
d3-NMeFOSAA	76		25 - 150

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# QC Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

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

**Lab Sample ID: LCSD 320-709746/3-A**

**Matrix: Water**

**Analysis Batch: 710118**

**Client Sample ID: Lab Control Sample Dup**

**Prep Type: Total/NA**

**Prep Batch: 709746**

Isotope Dilution	LCSD LCSD		Limits
	%Recovery	Qualifier	
d5-NEtFOSAA	77		25 - 150
M2-4:2 FTS	84		25 - 150
M2-6:2 FTS	79		25 - 150
M2-8:2 FTS	107		25 - 150
13C2 10:2 FTS	99		25 - 150
d-N-MeFOSA-M	82		20 - 150
d-N-EtFOSA-M	84		20 - 150
d7-N-MeFOSE-M	81		10 - 120
d9-N-EtFOSE-M	84		10 - 120
13C3 HFPO-DA	84		25 - 150
13C-6:2 FTCA	121		25 - 150
13C-8:2 FTCA	125		25 - 150
13C-10:2 FTCA	97		25 - 150
13C3-PFPtA	98		25 - 150

**Lab Sample ID: MB 320-710937/1-A**

**Matrix: Solid**

**Analysis Batch: 713697**

**Client Sample ID: Method Blank**

**Prep Type: Pre-Treatment**

**Prep Batch: 710937**

Analyte	MB MB		RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorobutanoic acid (PFBA)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
Perfluoropentanoic acid (PFPeA)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
Perfluorohexanoic acid (PFHxA)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
Perfluoroheptanoic acid (PFHpA)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
Perfluorooctanoic acid (PFOA)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
Perfluorononanoic acid (PFNA)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
Perfluorodecanoic acid (PFDA)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
Perfluoroundecanoic acid (PFUnA)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
Perfluorododecanoic acid (PFDoA)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
Perfluorotridecanoic acid (PFTriDA)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
Perfluoro-n-octadecanoic acid (PFODA)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
Perfluorononanesulfonic acid (PFNS)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
Perfluorooctanesulfonamide (FOSA)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1

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# QC Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

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

Lab Sample ID: MB 320-710937/1-A

Matrix: Solid

Analysis Batch: 713697

Client Sample ID: Method Blank

Prep Type: Pre-Treatment

Prep Batch: 710937

Analyte	MB	MB	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
6:2 FTCA	ND		1.5		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
8:2 FTCA	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
10:2 FTCA	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
PFECHS	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
PFPrS	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
Perfluoro-2-methoxyacetic acid (PFMOAA)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
PFPE-1	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
Perfluoro(3,5-dioxaheptanoic) acid (PFO2HxA)	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
PFO5DA	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
PMPA	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
PEPA	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1

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# QC Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

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

Lab Sample ID: MB 320-710937/1-A

Matrix: Solid

Analysis Batch: 713697

Client Sample ID: Method Blank

Prep Type: Pre-Treatment

Prep Batch: 710937

Analyte	MB	MB	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
R-EVE	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
NVHOS	ND		2.5		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
Hydro-EVE Acid	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
R-PSDCA	ND		1.5		ug/Kg		09/19/23 22:00	10/17/23 06:25	1
Hydro-PS Acid	ND		1.0		ug/Kg		09/19/23 22:00	10/17/23 06:25	1

Isotope Dilution	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C8 FOSA	101		25 - 150	09/19/23 22:00	10/17/23 06:25	1
13C4 PFBA	66		25 - 150	09/19/23 22:00	10/17/23 06:25	1
13C5 PFPeA	92		25 - 150	09/19/23 22:00	10/17/23 06:25	1
13C2 PFHxA	91		25 - 150	09/19/23 22:00	10/17/23 06:25	1
13C4 PFHpA	91		25 - 150	09/19/23 22:00	10/17/23 06:25	1
13C4 PFOA	92		25 - 150	09/19/23 22:00	10/17/23 06:25	1
13C5 PFNA	90		25 - 150	09/19/23 22:00	10/17/23 06:25	1
13C2 PFDA	94		25 - 150	09/19/23 22:00	10/17/23 06:25	1
13C2 PFUnA	99		25 - 150	09/19/23 22:00	10/17/23 06:25	1
13C2 PFDoA	93		25 - 150	09/19/23 22:00	10/17/23 06:25	1
13C2 PFTeDA	108		25 - 150	09/19/23 22:00	10/17/23 06:25	1
13C2 PFHxDA	78		25 - 150	09/19/23 22:00	10/17/23 06:25	1
13C3 PFBS	88		25 - 150	09/19/23 22:00	10/17/23 06:25	1
18O2 PFHxS	101		25 - 150	09/19/23 22:00	10/17/23 06:25	1
13C4 PFOS	88		25 - 150	09/19/23 22:00	10/17/23 06:25	1
d3-NMeFOSAA	81		25 - 150	09/19/23 22:00	10/17/23 06:25	1
d5-NEtFOSAA	91		25 - 150	09/19/23 22:00	10/17/23 06:25	1
M2-6:2 FTS	96		25 - 150	09/19/23 22:00	10/17/23 06:25	1
M2-8:2 FTS	111		25 - 150	09/19/23 22:00	10/17/23 06:25	1
13C2 10:2 FTS	101		25 - 150	09/19/23 22:00	10/17/23 06:25	1
d-N-MeFOSA-M	86		25 - 150	09/19/23 22:00	10/17/23 06:25	1
d-N-EtFOSA-M	86		25 - 150	09/19/23 22:00	10/17/23 06:25	1
d7-N-MeFOSE-M	84		25 - 150	09/19/23 22:00	10/17/23 06:25	1
d9-N-EtFOSE-M	83		25 - 150	09/19/23 22:00	10/17/23 06:25	1
13C3 HFPO-DA	78		25 - 150	09/19/23 22:00	10/17/23 06:25	1
13C-6:2 FTCA	79		25 - 150	09/19/23 22:00	10/17/23 06:25	1
13C-8:2 FTCA	68		25 - 150	09/19/23 22:00	10/17/23 06:25	1
13C-10:2 FTCA	76		25 - 150	09/19/23 22:00	10/17/23 06:25	1

Lab Sample ID: LCS 320-710937/2-A

Matrix: Solid

Analysis Batch: 713697

Client Sample ID: Lab Control Sample

Prep Type: Pre-Treatment

Prep Batch: 710937

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Perfluorobutanoic acid (PFBA)	10.0	12.0		ug/Kg		120	76 - 136
Perfluoropentanoic acid (PFPeA)	10.0	11.1		ug/Kg		111	69 - 129
Perfluorohexanoic acid (PFHxA)	10.0	10.6		ug/Kg		106	71 - 131
Perfluoroheptanoic acid (PFHpA)	10.0	10.1		ug/Kg		101	71 - 131
Perfluorooctanoic acid (PFOA)	10.0	10.2		ug/Kg		102	72 - 132
Perfluorononanoic acid (PFNA)	10.0	11.4		ug/Kg		114	73 - 133
Perfluorodecanoic acid (PFDA)	10.0	11.7		ug/Kg		117	72 - 132

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# QC Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

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

Lab Sample ID: LCS 320-710937/2-A

Matrix: Solid

Analysis Batch: 713697

Client Sample ID: Lab Control Sample

Prep Type: Pre-Treatment

Prep Batch: 710937

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroundecanoic acid (PFUnA)	10.0	10.9		ug/Kg		109	66 - 126
Perfluorododecanoic acid (PFDoA)	10.0	9.88		ug/Kg		99	71 - 131
Perfluorotridecanoic acid (PFTrDA)	10.0	11.7		ug/Kg		117	71 - 131
Perfluorotetradecanoic acid (PFTeA)	10.0	9.76		ug/Kg		98	67 - 127
Perfluoro-n-hexadecanoic acid (PFHxDA)	10.0	11.3		ug/Kg		113	75 - 135
Perfluoro-n-octadecanoic acid (PFODA)	10.0	14.3	*+	ug/Kg		143	53 - 130
Perfluorobutanesulfonic acid (PFBS)	8.88	10.2		ug/Kg		115	69 - 129
Perfluoropentanesulfonic acid (PFPeS)	9.40	11.3		ug/Kg		120	66 - 126
Perfluorohexanesulfonic acid (PFHxS)	9.12	8.73		ug/Kg		96	62 - 122
Perfluoroheptanesulfonic acid (PFHpS)	9.54	11.4		ug/Kg		120	76 - 136
Perfluorooctanesulfonic acid (PFOS)	9.30	10.1		ug/Kg		109	68 - 141
Perfluorononanesulfonic acid (PFNS)	9.62	12.0		ug/Kg		125	72 - 132
Perfluorodecanesulfonic acid (PFDS)	9.64	10.1		ug/Kg		105	71 - 131
Perfluorododecanesulfonic acid (PFDoS)	9.70	9.29		ug/Kg		96	70 - 130
Perfluorooctanesulfonamide (FOSA)	10.0	10.9		ug/Kg		109	77 - 137
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	10.0	9.35		ug/Kg		94	72 - 132
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	10.0	8.77		ug/Kg		88	72 - 132
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	9.52	9.94		ug/Kg		104	73 - 139
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	9.60	10.5		ug/Kg		109	75 - 135
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	9.66	9.77		ug/Kg		101	69 - 145
N-ethylperfluorooctane sulfonamide (NEtFOSA)	10.0	12.1		ug/Kg		121	47 - 161
N-methylperfluorooctane sulfonamide (NMeFOSA)	10.0	10.7		ug/Kg		107	63 - 148
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	10.0	9.73		ug/Kg		97	43 - 153
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	10.0	11.3		ug/Kg		113	44 - 155
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	10.0	10.4		ug/Kg		104	53 - 158
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	9.34	9.92		ug/Kg		106	74 - 134

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# QC Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

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

Lab Sample ID: LCS 320-710937/2-A

Matrix: Solid

Analysis Batch: 713697

Client Sample ID: Lab Control Sample

Prep Type: Pre-Treatment

Prep Batch: 710937

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	9.44	9.27		ug/Kg		98	66 - 136
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.46	10.1		ug/Kg		107	79 - 139
3-Perfluoropentylpropanoic acid (5:3 FTCA)	10.0	12.6		ug/Kg		126	50 - 150
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	10.0	12.7		ug/Kg		127	50 - 150
6:2 FTCA	10.0	10.8		ug/Kg		108	50 - 150
8:2 FTCA	10.0	10.4		ug/Kg		104	50 - 150
10:2 FTCA	10.0	13.4		ug/Kg		134	50 - 150
PFECHS	9.24	10.7		ug/Kg		116	50 - 150
PFPrS	9.20	10.4		ug/Kg		114	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	10.0	13.8		ug/Kg		138	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	10.0	11.3		ug/Kg		113	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	10.0	9.81		ug/Kg		98	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	8.92	10.3		ug/Kg		115	50 - 150

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C8 FOSA	100		25 - 150
13C4 PFBA	85		25 - 150
13C5 PFPeA	89		25 - 150
13C2 PFHxA	92		25 - 150
13C4 PFHpA	97		25 - 150
13C4 PFOA	93		25 - 150
13C5 PFNA	91		25 - 150
13C2 PFDA	94		25 - 150
13C2 PFUnA	101		25 - 150
13C2 PFDoA	94		25 - 150
13C2 PFTeDA	108		25 - 150
13C2 PFHxDA	76		25 - 150
13C3 PFBS	92		25 - 150
18O2 PFHxS	102		25 - 150
13C4 PFOS	91		25 - 150
d3-NMeFOSAA	85		25 - 150
d5-NEtFOSAA	86		25 - 150
M2-6:2 FTS	92		25 - 150
M2-8:2 FTS	100		25 - 150
13C2 10:2 FTS	106		25 - 150
d-N-MeFOSA-M	81		25 - 150
d-N-EtFOSA-M	77		25 - 150
d7-N-MeFOSE-M	83		25 - 150
d9-N-EtFOSE-M	69		25 - 150
13C3 HFPO-DA	79		25 - 150
13C-6:2 FTCA	76		25 - 150
13C-8:2 FTCA	68		25 - 150

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# QC Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

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

Lab Sample ID: LCS 320-710937/2-A

Matrix: Solid

Analysis Batch: 713697

Client Sample ID: Lab Control Sample

Prep Type: Pre-Treatment

Prep Batch: 710937

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C-10:2 FTCA	62		25 - 150

Lab Sample ID: LCSD 320-710937/3-A

Matrix: Solid

Analysis Batch: 713697

Client Sample ID: Lab Control Sample Dup

Prep Type: Pre-Treatment

Prep Batch: 710937

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	10.0	11.5		ug/Kg		115	76 - 136	5	30
Perfluoropentanoic acid (PFPeA)	10.0	10.5		ug/Kg		105	69 - 129	6	30
Perfluorohexanoic acid (PFHxA)	10.0	10.6		ug/Kg		106	71 - 131	0	30
Perfluoroheptanoic acid (PFHpA)	10.0	11.0		ug/Kg		110	71 - 131	9	30
Perfluorooctanoic acid (PFOA)	10.0	10.7		ug/Kg		107	72 - 132	5	30
Perfluorononanoic acid (PFNA)	10.0	10.7		ug/Kg		107	73 - 133	6	30
Perfluorodecanoic acid (PFDA)	10.0	12.4		ug/Kg		124	72 - 132	6	30
Perfluoroundecanoic acid (PFUnA)	10.0	11.4		ug/Kg		114	66 - 126	5	30
Perfluorododecanoic acid (PFDoA)	10.0	10.2		ug/Kg		102	71 - 131	3	30
Perfluorotridecanoic acid (PFTrDA)	10.0	10.3		ug/Kg		103	71 - 131	12	30
Perfluorotetradecanoic acid (PFTeA)	10.0	9.85		ug/Kg		99	67 - 127	1	30
Perfluoro-n-hexadecanoic acid (PFHxDA)	10.0	9.53		ug/Kg		95	75 - 135	17	30
Perfluoro-n-octadecanoic acid (PFODA)	10.0	9.26	*1	ug/Kg		93	53 - 130	43	30
Perfluorobutanesulfonic acid (PFBS)	8.88	9.72		ug/Kg		109	69 - 129	5	30
Perfluoropentanesulfonic acid (PFPeS)	9.40	11.0		ug/Kg		117	66 - 126	2	30
Perfluorohexanesulfonic acid (PFHxS)	9.12	9.28		ug/Kg		102	62 - 122	6	30
Perfluoroheptanesulfonic acid (PFHpS)	9.54	10.3		ug/Kg		108	76 - 136	10	30
Perfluorooctanesulfonic acid (PFOS)	9.30	10.0		ug/Kg		108	68 - 141	1	30
Perfluorononanesulfonic acid (PFNS)	9.62	10.8		ug/Kg		112	72 - 132	11	30
Perfluorodecanesulfonic acid (PFDS)	9.64	11.2		ug/Kg		116	71 - 131	11	30
Perfluorododecanesulfonic acid (PFDoS)	9.70	11.2		ug/Kg		115	70 - 130	19	30
Perfluorooctanesulfonamide (FOSA)	10.0	11.5		ug/Kg		115	77 - 137	5	30
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	10.0	9.77		ug/Kg		98	72 - 132	4	30
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	10.0	10.2		ug/Kg		102	72 - 132	15	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	9.52	9.83		ug/Kg		103	73 - 139	1	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	9.60	11.4		ug/Kg		118	75 - 135	8	30

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# QC Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

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

Lab Sample ID: LCSD 320-710937/3-A

Matrix: Solid

Analysis Batch: 713697

Client Sample ID: Lab Control Sample Dup

Prep Type: Pre-Treatment

Prep Batch: 710937

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	RPD Limit
							Limits	RPD		
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	9.66	10.7		ug/Kg		111	69 - 145	10	30	
N-ethylperfluorooctane sulfonamide (NEtFOSA)	10.0	11.5		ug/Kg		115	47 - 161	5	30	
N-methylperfluorooctane sulfonamide (NMeFOSA)	10.0	11.4		ug/Kg		114	63 - 148	6	30	
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	10.0	9.85		ug/Kg		99	43 - 153	1	30	
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	10.0	9.05		ug/Kg		90	44 - 155	22	30	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	10.0	10.3		ug/Kg		103	53 - 158	1	30	
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	9.34	9.03		ug/Kg		97	74 - 134	9	30	
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	9.44	9.63		ug/Kg		102	66 - 136	4	30	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.46	9.70		ug/Kg		103	79 - 139	4	30	
3-Perfluoropentylpropanoic acid (5:3 FTCA)	10.0	12.5		ug/Kg		125	50 - 150	0	30	
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	10.0	12.5		ug/Kg		125	50 - 150	2	30	
6:2 FTCA	10.0	10.2		ug/Kg		102	50 - 150	5	30	
8:2 FTCA	10.0	10.9		ug/Kg		109	50 - 150	5	30	
10:2 FTCA	10.0	12.6		ug/Kg		126	50 - 150	6	30	
PFECHS	9.24	10.5		ug/Kg		113	50 - 150	2	30	
PFPoS	9.20	10.2		ug/Kg		110	50 - 150	3	30	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	10.0	12.0		ug/Kg		120	50 - 150	14	30	
Perfluoro-4-methoxybutanoic acid (PFMBA)	10.0	9.96		ug/Kg		100	50 - 150	13	30	
Perfluoro-3-methoxypropanoic acid (PFMPA)	10.0	6.63	*1	ug/Kg		66	50 - 150	39	30	
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEISA)	8.92	10.2		ug/Kg		115	50 - 150	0	30	

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
13C8 FOSA	114		25 - 150
13C4 PFBA	34		25 - 150
13C5 PFPeA	98		25 - 150
13C2 PFHxA	98		25 - 150
13C4 PFHpA	96		25 - 150
13C4 PFOA	100		25 - 150
13C5 PFNA	100		25 - 150
13C2 PFDA	92		25 - 150
13C2 PFUnA	105		25 - 150
13C2 PFDoA	112		25 - 150
13C2 PFTeDA	124		25 - 150
13C2 PFHxDA	83		25 - 150
13C3 PFBS	95		25 - 150
18O2 PFHxS	105		25 - 150

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# QC Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

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

**Lab Sample ID: LCSD 320-710937/3-A**  
**Matrix: Solid**  
**Analysis Batch: 713697**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Pre-Treatment**  
**Prep Batch: 710937**

Isotope Dilution	LCSD LCSD		Limits
	%Recovery	Qualifier	
13C4 PFOS	99		25 - 150
d3-NMeFOSAA	90		25 - 150
d5-NEtFOSAA	94		25 - 150
M2-6:2 FTS	102		25 - 150
M2-8:2 FTS	103		25 - 150
13C2 10:2 FTS	106		25 - 150
d-N-MeFOSA-M	96		25 - 150
d-N-EtFOSA-M	90		25 - 150
d7-N-MeFOSE-M	92		25 - 150
d9-N-EtFOSE-M	91		25 - 150
13C3 HFPO-DA	86		25 - 150
13C-6:2 FTCA	82		25 - 150
13C-8:2 FTCA	76		25 - 150
13C-10:2 FTCA	73		25 - 150

**Lab Sample ID: MB 320-710936/1-A**  
**Matrix: Solid**  
**Analysis Batch: 713698**

**Client Sample ID: Method Blank**  
**Prep Type: Post-Treatment**  
**Prep Batch: 710936**

Analyte	MB MB		RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorobutanoic acid (PFBA)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
Perfluoropentanoic acid (PFPeA)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
Perfluorohexanoic acid (PFHxA)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
Perfluoroheptanoic acid (PFHpA)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
Perfluorooctanoic acid (PFOA)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
Perfluorononanoic acid (PFNA)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
Perfluorodecanoic acid (PFDA)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
Perfluoroundecanoic acid (PFUnA)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
Perfluorododecanoic acid (PFDoA)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
Perfluorotridecanoic acid (PFTriDA)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
Perfluoro-n-octadecanoic acid (PFODA)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
Perfluorononanesulfonic acid (PFNS)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
Perfluorooctanesulfonamide (FOSA)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1

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# QC Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

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

Lab Sample ID: MB 320-710936/1-A

Matrix: Solid

Analysis Batch: 713698

Client Sample ID: Method Blank

Prep Type: Post-Treatment

Prep Batch: 710936

Analyte	MB	MB	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid (9Cl-PF3ONS)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
6:2 FTCA	ND		1.5		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
8:2 FTCA	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
10:2 FTCA	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
PFECHS	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
PFPPrS	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
Perfluoro-2-methoxyacetic acid (PFMOAA)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
PFPE-1	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
PFO5DA	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
PMPA	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
PEPA	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
R-EVE	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
NVHOS	ND		2.5		ug/Kg		09/19/23 21:50	10/17/23 10:57	1

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# QC Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

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

**Lab Sample ID: MB 320-710936/1-A**  
**Matrix: Solid**  
**Analysis Batch: 713698**

**Client Sample ID: Method Blank**  
**Prep Type: Post-Treatment**  
**Prep Batch: 710936**

Analyte	MB	MB	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Hydro-EVE Acid	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
R-PSDCA	ND		1.5		ug/Kg		09/19/23 21:50	10/17/23 10:57	1
Hydro-PS Acid	ND		1.0		ug/Kg		09/19/23 21:50	10/17/23 10:57	1

Isotope Dilution	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C8 FOSA	91		25 - 150	09/19/23 21:50	10/17/23 10:57	1
13C4 PFBA	60		25 - 150	09/19/23 21:50	10/17/23 10:57	1
13C5 PFPeA	95		25 - 150	09/19/23 21:50	10/17/23 10:57	1
13C2 PFHxA	94		25 - 150	09/19/23 21:50	10/17/23 10:57	1
13C4 PFHpA	92		25 - 150	09/19/23 21:50	10/17/23 10:57	1
13C4 PFOA	93		25 - 150	09/19/23 21:50	10/17/23 10:57	1
13C5 PFNA	89		25 - 150	09/19/23 21:50	10/17/23 10:57	1
13C2 PFDA	78		25 - 150	09/19/23 21:50	10/17/23 10:57	1
13C2 PFUnA	97		25 - 150	09/19/23 21:50	10/17/23 10:57	1
13C2 PFDoA	90		25 - 150	09/19/23 21:50	10/17/23 10:57	1
13C2 PFTeDA	101		25 - 150	09/19/23 21:50	10/17/23 10:57	1
13C2 PFHxDA	91		25 - 150	09/19/23 21:50	10/17/23 10:57	1
13C3 PFBS	87		25 - 150	09/19/23 21:50	10/17/23 10:57	1
18O2 PFHxS	96		25 - 150	09/19/23 21:50	10/17/23 10:57	1
13C4 PFOS	84		25 - 150	09/19/23 21:50	10/17/23 10:57	1
d3-NMeFOSAA	99		25 - 150	09/19/23 21:50	10/17/23 10:57	1
d5-NEtFOSAA	109		25 - 150	09/19/23 21:50	10/17/23 10:57	1
M2-4:2 FTS	0		0 - 10	09/19/23 21:50	10/17/23 10:57	1
M2-6:2 FTS	98		25 - 150	09/19/23 21:50	10/17/23 10:57	1
M2-8:2 FTS	99		25 - 150	09/19/23 21:50	10/17/23 10:57	1
13C2 10:2 FTS	95		25 - 150	09/19/23 21:50	10/17/23 10:57	1
d-N-MeFOSA-M	78		25 - 150	09/19/23 21:50	10/17/23 10:57	1
d-N-EtFOSA-M	77		25 - 150	09/19/23 21:50	10/17/23 10:57	1
d7-N-MeFOSE-M	76		25 - 150	09/19/23 21:50	10/17/23 10:57	1
d9-N-EtFOSE-M	70		25 - 150	09/19/23 21:50	10/17/23 10:57	1
13C3 HFPO-DA	77		25 - 150	09/19/23 21:50	10/17/23 10:57	1
13C-6:2 FTCA	72		25 - 150	09/19/23 21:50	10/17/23 10:57	1
13C-8:2 FTCA	81		25 - 150	09/19/23 21:50	10/17/23 10:57	1
13C-10:2 FTCA	88		25 - 150	09/19/23 21:50	10/17/23 10:57	1

**Lab Sample ID: LCS 320-710936/2-A**  
**Matrix: Solid**  
**Analysis Batch: 713698**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Post-Treatment**  
**Prep Batch: 710936**

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Perfluorobutanoic acid (PFBA)	10.0	15.5		ug/Kg		155	96 - 183
Perfluoropentanoic acid (PFPeA)	10.0	15.2	*+	ug/Kg		152	81 - 141
Perfluorohexanoic acid (PFHxA)	10.0	18.3	*+	ug/Kg		183	92 - 152
Perfluoroheptanoic acid (PFHpA)	10.0	18.1	*+	ug/Kg		181	100 - 160
Perfluorooctanoic acid (PFOA)	10.0	36.3		ug/Kg		363	169 - 414
Perfluorononanoic acid (PFNA)	10.0	15.5	*+	ug/Kg		155	82 - 142
Perfluorodecanoic acid (PFDA)	10.0	12.8		ug/Kg		128	81 - 141
Perfluoroundecanoic acid (PFUnA)	10.0	11.3		ug/Kg		113	70 - 130

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# QC Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

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

Lab Sample ID: LCS 320-710936/2-A

Matrix: Solid

Analysis Batch: 713698

Client Sample ID: Lab Control Sample

Prep Type: Post-Treatment

Prep Batch: 710936

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorododecanoic acid (PFDoA)	10.0	9.27		ug/Kg		93	63 - 123
Perfluorotridecanoic acid (PFTrDA)	10.0	10.7		ug/Kg		107	63 - 123
Perfluorotetradecanoic acid (PFTeA)	10.0	9.15		ug/Kg		92	55 - 115
Perfluoro-n-hexadecanoic acid (PFHxDA)	10.0	8.77		ug/Kg		88	42 - 102
Perfluoro-n-octadecanoic acid (PFODA)	10.0	9.91	*+	ug/Kg		99	36 - 96
Perfluorobutanesulfonic acid (PFBS)	8.88	10.5		ug/Kg		118	74 - 134
Perfluoropentanesulfonic acid (PFPeS)	9.40	10.5		ug/Kg		112	68 - 134
Perfluorohexanesulfonic acid (PFHxS)	9.12	10.4		ug/Kg		114	61 - 121
Perfluoroheptanesulfonic acid (PFHpS)	9.54	10.6		ug/Kg		112	68 - 128
Perfluorooctanesulfonic acid (PFOS)	9.30	11.3		ug/Kg		122	70 - 138
Perfluorononanesulfonic acid (PFNS)	9.62	10.9		ug/Kg		114	66 - 126
Perfluorodecanesulfonic acid (PFDS)	9.64	10.6		ug/Kg		110	66 - 126
Perfluorododecanesulfonic acid (PFDoS)	9.70	10.6		ug/Kg		110	70 - 130
Perfluorooctanesulfonamide (FOSA)	10.0	ND		ug/Kg		0	0 - 10
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	10.0	ND		ug/Kg		0	0 - 10
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	10.0	ND		ug/Kg		0	0 - 10
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	9.38	ND		ug/Kg		0	0 - 10
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	9.52	ND		ug/Kg		0	0 - 10
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	9.60	ND		ug/Kg		0	0 - 10
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	9.66	ND		ug/Kg		0	0 - 10
N-ethylperfluorooctane sulfonamide (NEtFOSA)	10.0	ND		ug/Kg		0	0 - 10
N-methylperfluorooctane sulfonamide (NMeFOSA)	10.0	ND		ug/Kg		0	0 - 10
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	10.0	ND		ug/Kg		0	0 - 10
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	10.0	ND		ug/Kg		0	0 - 10
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	10.0	5.81		ug/Kg		58	53 - 158
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	9.34	8.96		ug/Kg		96	74 - 134

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# QC Sample Results

Client: Hawaii Department of Health  
 Project/Site: Background Study

Job ID: 320-105223-1

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

Lab Sample ID: LCS 320-710936/2-A

Matrix: Solid

Analysis Batch: 713698

Client Sample ID: Lab Control Sample

Prep Type: Post-Treatment

Prep Batch: 710936

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.46	ND		ug/Kg		0	0 - 10
3-Perfluoropentylpropanoic acid (5:3 FTCA)	10.0	ND		ug/Kg		0	0 - 10
6:2 FTCA	10.0	ND		ug/Kg		0	0 - 10
8:2 FTCA	10.0	ND		ug/Kg		0	0 - 10
10:2 FTCA	10.0	ND		ug/Kg		0	0 - 10
PFECHS	9.24	10.8		ug/Kg		116	50 - 150
PFPPrS	9.20	10.3		ug/Kg		112	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	10.0	8.04		ug/Kg		80	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	10.0	5.83		ug/Kg		58	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	10.0	9.36		ug/Kg		94	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)	8.92	9.64		ug/Kg		108	50 - 150

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C8 FOSA	106		25 - 150
13C4 PFBA	96		25 - 150
13C5 PFPeA	104		25 - 150
13C2 PFHxA	97		25 - 150
13C4 PFHpA	98		25 - 150
13C4 PFOA	98		25 - 150
13C5 PFNA	98		25 - 150
13C2 PFDA	100		25 - 150
13C2 PFUnA	104		25 - 150
13C2 PFDoA	108		25 - 150
13C2 PFTeDA	119		25 - 150
13C2 PFHxDA	97		25 - 150
13C3 PFBS	100		25 - 150
18O2 PFHxS	104		25 - 150
13C4 PFOS	100		25 - 150
d3-NMeFOSAA	119		25 - 150
d5-NEtFOSAA	128		25 - 150
M2-4:2 FTS	0		0 - 10
M2-6:2 FTS	120		25 - 150
M2-8:2 FTS	115		25 - 150
13C2 10:2 FTS	107		25 - 150
d-N-MeFOSA-M	85		25 - 150
d-N-EtFOSA-M	77		25 - 150
d7-N-MeFOSE-M	89		25 - 150
d9-N-EtFOSE-M	87		25 - 150
13C3 HFPO-DA	91		25 - 150
13C-6:2 FTCA	84		25 - 150
13C-8:2 FTCA	97		25 - 150
13C-10:2 FTCA	91		25 - 150

# QC Sample Results

Client: Hawaii Department of Health  
 Project/Site: Background Study

Job ID: 320-105223-1

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

**Lab Sample ID: LCSD 320-710936/3-A**  
**Matrix: Solid**  
**Analysis Batch: 713698**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Post-Treatment**  
**Prep Batch: 710936**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD
									Limit
Perfluorobutanoic acid (PFBA)	10.0	14.8		ug/Kg		148	96 - 183	4	30
Perfluoropentanoic acid (PFPeA)	10.0	14.5	*+	ug/Kg		145	81 - 141	5	30
Perfluorohexanoic acid (PFHxA)	10.0	17.8	*+	ug/Kg		178	92 - 152	3	30
Perfluoroheptanoic acid (PFHpA)	10.0	19.6	*+	ug/Kg		196	100 - 160	8	30
Perfluorooctanoic acid (PFOA)	10.0	34.7		ug/Kg		347	169 - 414	4	30
Perfluorononanoic acid (PFNA)	10.0	17.3	*+	ug/Kg		173	82 - 142	11	30
Perfluorodecanoic acid (PFDA)	10.0	15.4	*+	ug/Kg		154	81 - 141	18	30
Perfluoroundecanoic acid (PFUnA)	10.0	9.99		ug/Kg		100	70 - 130	12	30
Perfluorododecanoic acid (PFDoA)	10.0	10.4		ug/Kg		104	63 - 123	12	30
Perfluorotridecanoic acid (PFTrDA)	10.0	11.1		ug/Kg		111	63 - 123	3	30
Perfluorotetradecanoic acid (PFTeA)	10.0	9.75		ug/Kg		97	55 - 115	6	30
Perfluoro-n-hexadecanoic acid (PFHxDA)	10.0	8.83		ug/Kg		88	42 - 102	1	30
Perfluoro-n-octadecanoic acid (PFODA)	10.0	8.87		ug/Kg		89	36 - 96	11	30
Perfluorobutanesulfonic acid (PFBS)	8.88	10.5		ug/Kg		118	74 - 134	0	30
Perfluoropentanesulfonic acid (PFPeS)	9.40	10.8		ug/Kg		115	68 - 134	2	30
Perfluorohexanesulfonic acid (PFHxS)	9.12	10.9		ug/Kg		120	61 - 121	5	30
Perfluoroheptanesulfonic acid (PFHpS)	9.54	10.5		ug/Kg		110	68 - 128	1	30
Perfluorooctanesulfonic acid (PFOS)	9.30	11.9		ug/Kg		128	70 - 138	4	30
Perfluorononanesulfonic acid (PFNS)	9.62	10.6		ug/Kg		111	66 - 126	3	30
Perfluorodecanesulfonic acid (PFDS)	9.64	10.9		ug/Kg		113	66 - 126	3	30
Perfluorododecanesulfonic acid (PFDoS)	9.70	9.90		ug/Kg		102	70 - 130	7	30
Perfluorooctanesulfonamide (FOSA)	10.0	ND		ug/Kg		0	0 - 10	NC	30
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	10.0	ND		ug/Kg		0	0 - 10	NC	30
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	10.0	ND		ug/Kg		0	0 - 10	NC	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	9.38	ND		ug/Kg		0	0 - 10	NC	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	9.52	ND		ug/Kg		0	0 - 10	NC	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	9.60	ND		ug/Kg		0	0 - 10	NC	30
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	9.66	ND		ug/Kg		0	0 - 10	NC	30
N-ethylperfluorooctane sulfonamide (NEtFOSA)	10.0	ND		ug/Kg		0	0 - 10	NC	30

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# QC Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

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

Lab Sample ID: LCSD 320-710936/3-A

Matrix: Solid

Analysis Batch: 713698

Client Sample ID: Lab Control Sample Dup

Prep Type: Post-Treatment

Prep Batch: 710936

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD
									Limit
N-methylperfluorooctane sulfonamide (NMeFOSA)	10.0	ND		ug/Kg		0	0 - 10	NC	30
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	10.0	ND		ug/Kg		0	0 - 10	NC	30
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	10.0	ND		ug/Kg		0	0 - 10	NC	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	10.0	7.81		ug/Kg		78	53 - 158	29	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	9.34	9.00		ug/Kg		96	74 - 134	0	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.46	ND		ug/Kg		0	0 - 10	NC	30
3-Perfluoropentylpropanoic acid (5:3 FTCA)	10.0	ND		ug/Kg		0	0 - 10	NC	30
6:2 FTCA	10.0	ND		ug/Kg		0	0 - 10	NC	30
8:2 FTCA	10.0	ND		ug/Kg		0	0 - 10	NC	30
10:2 FTCA	10.0	ND		ug/Kg		0	0 - 10	NC	30
PFECBS	9.24	11.1		ug/Kg		120	50 - 150	3	30
PFPrS	9.20	10.5		ug/Kg		114	50 - 150	1	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	10.0	7.69		ug/Kg		77	50 - 150	4	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	10.0	5.71		ug/Kg		57	50 - 150	2	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	10.0	8.11		ug/Kg		81	50 - 150	14	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	8.92	10.2		ug/Kg		114	50 - 150	6	30

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
13C8 FOSA	107		25 - 150
13C4 PFBA	55		25 - 150
13C5 PFPeA	102		25 - 150
13C2 PFHxA	97		25 - 150
13C4 PFHpA	92		25 - 150
13C4 PFOA	93		25 - 150
13C5 PFNA	92		25 - 150
13C2 PFDA	99		25 - 150
13C2 PFUnA	106		25 - 150
13C2 PFDaA	99		25 - 150
13C2 PFTeDA	101		25 - 150
13C2 PFHxDA	92		25 - 150
13C3 PFBS	95		25 - 150
18O2 PFHxS	99		25 - 150
13C4 PFOS	96		25 - 150
d3-NMeFOSAA	117		25 - 150
d5-NEtFOSAA	112		25 - 150
M2-4:2 FTS	0		0 - 10
M2-6:2 FTS	116		25 - 150
M2-8:2 FTS	125		25 - 150
13C2 10:2 FTS	102		25 - 150
d-N-MeFOSA-M	87		25 - 150

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# QC Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

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

**Lab Sample ID: LCSD 320-710936/3-A**  
**Matrix: Solid**  
**Analysis Batch: 713698**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Post-Treatment**  
**Prep Batch: 710936**

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
d-N-EtFOSA-M	91		25 - 150
d7-N-MeFOSE-M	84		25 - 150
d9-N-EtFOSE-M	79		25 - 150
13C3 HFPO-DA	83		25 - 150
13C-6:2 FTCA	78		25 - 150
13C-8:2 FTCA	87		25 - 150
13C-10:2 FTCA	101		25 - 150

**Lab Sample ID: MB 320-722691/1-A**  
**Matrix: Solid**  
**Analysis Batch: 726774**

**Client Sample ID: Method Blank**  
**Prep Type: Post-Treatment**  
**Prep Batch: 722691**

Analyte	MB		RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorobutanoic acid (PFBA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
Perfluoropentanoic acid (PFPeA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
Perfluorohexanoic acid (PFHxA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
Perfluoroheptanoic acid (PFHpA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
Perfluorooctanoic acid (PFOA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
Perfluorononanoic acid (PFNA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
Perfluorodecanoic acid (PFDA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
Perfluoroundecanoic acid (PFUnA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
Perfluorododecanoic acid (PFDoA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
Perfluorotridecanoic acid (PFTTrDA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
Perfluoro-n-octadecanoic acid (PFODA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
Perfluorononanesulfonic acid (PFNS)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
Perfluorooctanesulfonamide (FOSA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1

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# QC Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

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

Lab Sample ID: MB 320-722691/1-A

Matrix: Solid

Analysis Batch: 726774

Client Sample ID: Method Blank

Prep Type: Post-Treatment

Prep Batch: 722691

Analyte	MB	MB	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
4,8-Dioxo-3H-perfluorononanoic acid (ADONA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
6:2 FTCA	ND		1.5		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
8:2 FTCA	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
10:2 FTCA	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
PFECHS	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
PFPoS	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
Perfluoro-2-methoxyacetic acid (PFMOAA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
Perfluoro(3,5-dioxaheptanoic) acid (PFO2HxA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
PFO5DA	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
PMPA	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
PEPA	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
R-EVE	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
NVHOS	ND		2.5		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
Hydro-EVE Acid	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
Hydro-PS Acid	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1

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# QC Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

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

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C8 FOSA	101		25 - 150	11/22/23 19:22	12/11/23 12:42	1
13C4 PFBA	99		25 - 150	11/22/23 19:22	12/11/23 12:42	1
13C5 PFPeA	101		25 - 150	11/22/23 19:22	12/11/23 12:42	1
13C2 PFHxA	102		25 - 150	11/22/23 19:22	12/11/23 12:42	1
13C4 PFHpA	115		25 - 150	11/22/23 19:22	12/11/23 12:42	1
13C4 PFOA	106		25 - 150	11/22/23 19:22	12/11/23 12:42	1
13C5 PFNA	117		25 - 150	11/22/23 19:22	12/11/23 12:42	1
13C2 PFDA	108		25 - 150	11/22/23 19:22	12/11/23 12:42	1
13C2 PFUnA	114		25 - 150	11/22/23 19:22	12/11/23 12:42	1
13C2 PFDoA	100		25 - 150	11/22/23 19:22	12/11/23 12:42	1
13C2 PFTeDA	79		25 - 150	11/22/23 19:22	12/11/23 12:42	1
13C2 PFHxDA	99		25 - 150	11/22/23 19:22	12/11/23 12:42	1
13C3 PFBS	104		25 - 150	11/22/23 19:22	12/11/23 12:42	1
18O2 PFHxS	106		25 - 150	11/22/23 19:22	12/11/23 12:42	1
13C4 PFOS	108		25 - 150	11/22/23 19:22	12/11/23 12:42	1
d3-NMeFOSAA	112		25 - 150	11/22/23 19:22	12/11/23 12:42	1
d5-NEtFOSAA	125		25 - 150	11/22/23 19:22	12/11/23 12:42	1
M2-4:2 FTS	0		0 - 10	11/22/23 19:22	12/11/23 12:42	1
M2-6:2 FTS	115		25 - 150	11/22/23 19:22	12/11/23 12:42	1
M2-8:2 FTS	132		25 - 150	11/22/23 19:22	12/11/23 12:42	1
13C2 10:2 FTS	116		25 - 150	11/22/23 19:22	12/11/23 12:42	1
d-N-MeFOSA-M	76		25 - 150	11/22/23 19:22	12/11/23 12:42	1
d-N-EtFOSA-M	88		25 - 150	11/22/23 19:22	12/11/23 12:42	1
d7-N-MeFOSE-M	98		25 - 150	11/22/23 19:22	12/11/23 12:42	1
d9-N-EtFOSE-M	74		25 - 150	11/22/23 19:22	12/11/23 12:42	1
13C3 HFPO-DA	99		25 - 150	11/22/23 19:22	12/11/23 12:42	1
13C-6:2 FTCA	105		25 - 150	11/22/23 19:22	12/11/23 12:42	1
13C-8:2 FTCA	118		25 - 150	11/22/23 19:22	12/11/23 12:42	1
13C-10:2 FTCA	120		25 - 150	11/22/23 19:22	12/11/23 12:42	1

Lab Sample ID: LCS 320-722691/2-A

Matrix: Solid

Analysis Batch: 726774

Client Sample ID: Lab Control Sample

Prep Type: Post-Treatment

Prep Batch: 722691

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoropentanoic acid (PFPeA)	10.0	16.8	*+	ug/Kg		168	81 - 141
Perfluorohexanoic acid (PFHxA)	10.0	20.9	*+	ug/Kg		209	92 - 152
Perfluoroheptanoic acid (PFHpA)	10.0	16.2	*+	ug/Kg		162	100 - 160
Perfluorooctanoic acid (PFOA)	10.0	32.4		ug/Kg		324	169 - 414
Perfluorononanoic acid (PFNA)	10.0	13.1		ug/Kg		131	82 - 142
Perfluorodecanoic acid (PFDA)	10.0	13.7		ug/Kg		137	81 - 141
Perfluoroundecanoic acid (PFUnA)	10.0	8.08		ug/Kg		81	70 - 130
Perfluorododecanoic acid (PFDoA)	10.0	10.1		ug/Kg		101	63 - 123
Perfluorotridecanoic acid (PFTTrDA)	10.0	10.6		ug/Kg		106	63 - 123
Perfluorotetradecanoic acid (PFTTeA)	10.0	8.02		ug/Kg		80	55 - 115
Perfluoro-n-hexadecanoic acid (PFHxDA)	10.0	6.81		ug/Kg		68	42 - 102

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# QC Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

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

Lab Sample ID: LCS 320-722691/2-A

Matrix: Solid

Analysis Batch: 726774

Client Sample ID: Lab Control Sample

Prep Type: Post-Treatment

Prep Batch: 722691

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoro-n-octadecanoic acid (PFODA)	10.0	3.93		ug/Kg		39	36 - 96
Perfluorobutanesulfonic acid (PFBS)	8.88	9.40		ug/Kg		106	74 - 134
Perfluoropentanesulfonic acid (PFPeS)	9.40	10.2		ug/Kg		108	68 - 134
Perfluorohexanesulfonic acid (PFHxS)	9.12	8.88		ug/Kg		97	61 - 121
Perfluoroheptanesulfonic acid (PFHpS)	9.54	7.88		ug/Kg		83	68 - 128
Perfluorooctanesulfonic acid (PFOS)	9.30	9.84		ug/Kg		106	70 - 138
Perfluorononanesulfonic acid (PFNS)	9.60	8.75		ug/Kg		91	66 - 126
Perfluorodecanesulfonic acid (PFDS)	9.64	10.4		ug/Kg		108	66 - 126
Perfluorododecanesulfonic acid (PFDoS)	9.70	9.65		ug/Kg		100	70 - 130
Perfluorooctanesulfonamide (FOSA)	10.0	ND		ug/Kg		0	0 - 10
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	10.0	ND		ug/Kg		0	0 - 10
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	10.0	ND		ug/Kg		0	0 - 10
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	9.38	ND		ug/Kg		0	0 - 10
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	9.52	ND		ug/Kg		0	0 - 10
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	9.60	ND		ug/Kg		0	0 - 10
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	9.66	ND		ug/Kg		0	0 - 10
N-ethylperfluorooctane sulfonamide (NEtFOSA)	10.0	ND		ug/Kg		0	0 - 10
N-methylperfluorooctane sulfonamide (NMeFOSA)	10.0	ND		ug/Kg		0	0 - 10
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	10.0	ND		ug/Kg		0	0 - 10
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	10.0	ND		ug/Kg		0	0 - 10
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	10.0	8.03		ug/Kg		80	53 - 158
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	9.34	8.14		ug/Kg		87	74 - 134
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	9.44	5.31	*-	ug/Kg		56	66 - 136
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.46	ND		ug/Kg		0	0 - 10
3-Perfluoropropylpropanoic acid (3:3 FTCA)	10.0	ND		ug/Kg		0	0 - 10
3-Perfluoropentylpropanoic acid (5:3 FTCA)	10.0	ND		ug/Kg		0	0 - 10

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# QC Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

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

Lab Sample ID: LCS 320-722691/2-A

Matrix: Solid

Analysis Batch: 726774

Client Sample ID: Lab Control Sample

Prep Type: Post-Treatment

Prep Batch: 722691

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	10.0	ND		ug/Kg		0	0 - 10
6:2 FTCA	10.0	ND		ug/Kg		0	0 - 10
8:2 FTCA	10.0	ND		ug/Kg		0	0 - 10
10:2 FTCA	10.0	ND		ug/Kg		0	0 - 10
PFECHS	9.24	8.70		ug/Kg		94	50 - 150
PFPrS	9.20	9.54		ug/Kg		104	50 - 150
Nonafluoro-3,6-dioxahexanoic acid (NFDHA)	10.0	7.94		ug/Kg		79	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	10.0	8.88		ug/Kg		89	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	10.0	13.6		ug/Kg		136	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	8.92	9.17		ug/Kg		103	50 - 150
Perfluoro-2-methoxyacetic acid (PFMOAA)	10.0	8.09		ug/Kg		81	50 - 150
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	10.0	6.71		ug/Kg		67	50 - 150
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	10.0	7.87		ug/Kg		79	50 - 150
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	10.0	9.06		ug/Kg		91	50 - 150
PFO5DA	10.0	8.72		ug/Kg		87	50 - 150
PMPA	10.0	6.38		ug/Kg		64	50 - 150
PEPA	10.0	7.40		ug/Kg		74	50 - 150
R-EVE	10.0	10.9		ug/Kg		109	50 - 150
NVHOS	10.0	ND		ug/Kg		0	0 - 10
Hydro-EVE Acid	10.0	ND		ug/Kg		0	0 - 10
Hydro-PS Acid	10.0	ND		ug/Kg		0	0 - 10

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C8 FOSA	93		25 - 150
13C4 PFBA	100		25 - 150
13C5 PFPeA	93		25 - 150
13C2 PFHxA	93		25 - 150
13C4 PFHpA	112		25 - 150
13C4 PFOA	99		25 - 150
13C5 PFNA	106		25 - 150
13C2 PFDA	103		25 - 150
13C2 PFUnA	105		25 - 150
13C2 PFDoA	92		25 - 150
13C2 PFTeDA	89		25 - 150
13C2 PFHxDA	104		25 - 150
13C3 PFBS	92		25 - 150
18O2 PFHxS	96		25 - 150
13C4 PFOS	97		25 - 150
d3-NMeFOSAA	111		25 - 150
d5-NEtFOSAA	102		25 - 150
M2-4:2 FTS	0		0 - 10
M2-6:2 FTS	118		25 - 150

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# QC Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

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

Lab Sample ID: LCS 320-722691/2-A

Matrix: Solid

Analysis Batch: 726774

Client Sample ID: Lab Control Sample

Prep Type: Post-Treatment

Prep Batch: 722691

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
M2-8:2 FTS	131		25 - 150
13C2 10:2 FTS	102		25 - 150
d-N-MeFOSA-M	66		25 - 150
d-N-EtFOSA-M	66		25 - 150
d7-N-MeFOSE-M	87		25 - 150
d9-N-EtFOSE-M	96		25 - 150
13C3 HFPO-DA	89		25 - 150
13C-6:2 FTCA	113		25 - 150
13C-8:2 FTCA	115		25 - 150
13C-10:2 FTCA	100		25 - 150

Lab Sample ID: LCSD 320-722691/3-A

Matrix: Solid

Analysis Batch: 726774

Client Sample ID: Lab Control Sample Dup

Prep Type: Post-Treatment

Prep Batch: 722691

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	
								RPD	Limit
Perfluorobutanoic acid (PFBA)	10.0	18.9	*+	ug/Kg		189	96 - 183	1	30
Perfluoropentanoic acid (PFPeA)	10.0	16.0	*+	ug/Kg		160	81 - 141	5	30
Perfluorohexanoic acid (PFHxA)	10.0	19.2	*+	ug/Kg		192	92 - 152	9	30
Perfluoroheptanoic acid (PFHpA)	10.0	16.5	*+	ug/Kg		165	100 - 160	2	30
Perfluorooctanoic acid (PFOA)	10.0	30.4		ug/Kg		304	169 - 414	6	30
Perfluorononanoic acid (PFNA)	10.0	14.2		ug/Kg		142	82 - 142	8	30
Perfluorodecanoic acid (PFDA)	10.0	13.7		ug/Kg		137	81 - 141	0	30
Perfluoroundecanoic acid (PFUnA)	10.0	9.76		ug/Kg		98	70 - 130	19	30
Perfluorododecanoic acid (PFDoA)	10.0	7.23	*1	ug/Kg		72	63 - 123	33	30
Perfluorotridecanoic acid (PFTrDA)	10.0	6.52	*1	ug/Kg		65	63 - 123	48	30
Perfluorotetradecanoic acid (PFTeA)	10.0	9.35		ug/Kg		94	55 - 115	15	30
Perfluoro-n-hexadecanoic acid (PFHxDA)	10.0	7.78		ug/Kg		78	42 - 102	13	30
Perfluoro-n-octadecanoic acid (PFODA)	10.0	4.27		ug/Kg		43	36 - 96	8	30
Perfluorobutanesulfonic acid (PFBS)	8.88	8.86		ug/Kg		100	74 - 134	6	30
Perfluoropentanesulfonic acid (PFPeS)	9.40	9.65		ug/Kg		103	68 - 134	5	30
Perfluorohexanesulfonic acid (PFHxS)	9.12	8.28		ug/Kg		91	61 - 121	7	30
Perfluoroheptanesulfonic acid (PFHpS)	9.54	9.03		ug/Kg		95	68 - 128	14	30
Perfluorooctanesulfonic acid (PFOS)	9.30	8.92		ug/Kg		96	70 - 138	10	30
Perfluorononanesulfonic acid (PFNS)	9.60	9.50		ug/Kg		99	66 - 126	8	30
Perfluorodecanesulfonic acid (PFDS)	9.64	9.33		ug/Kg		97	66 - 126	11	30
Perfluorododecanesulfonic acid (PFDoS)	9.70	7.45		ug/Kg		77	70 - 130	26	30
Perfluorooctanesulfonamide (FOSA)	10.0	ND		ug/Kg		0	0 - 10	NC	30

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# QC Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

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

Lab Sample ID: LCSD 320-722691/3-A

Matrix: Solid

Analysis Batch: 726774

Client Sample ID: Lab Control Sample Dup

Prep Type: Post-Treatment

Prep Batch: 722691

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD
									Limit
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	10.0	ND		ug/Kg		0	0 - 10	NC	30
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	10.0	ND		ug/Kg		0	0 - 10	NC	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	9.38	ND		ug/Kg		0	0 - 10	NC	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	9.52	ND		ug/Kg		0	0 - 10	NC	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	9.60	ND		ug/Kg		0	0 - 10	NC	30
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	9.66	ND		ug/Kg		0	0 - 10	NC	30
N-ethylperfluorooctane sulfonamide (NEtFOSA)	10.0	ND		ug/Kg		0	0 - 10	NC	30
N-methylperfluorooctane sulfonamide (NMeFOSA)	10.0	ND		ug/Kg		0	0 - 10	NC	30
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	10.0	ND		ug/Kg		0	0 - 10	NC	30
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	10.0	ND		ug/Kg		0	0 - 10	NC	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	10.0	7.08		ug/Kg		71	53 - 158	12	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	9.34	7.99		ug/Kg		86	74 - 134	2	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	9.44	5.63	*-	ug/Kg		60	66 - 136	6	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.46	ND		ug/Kg		0	0 - 10	NC	30
3-Perfluoropropylpropanoic acid (3:3 FTCA)	10.0	ND		ug/Kg		0	0 - 10	NC	30
3-Perfluoropentylpropanoic acid (5:3 FTCA)	10.0	ND		ug/Kg		0	0 - 10	NC	30
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	10.0	ND		ug/Kg		0	0 - 10	NC	30
6:2 FTCA	10.0	ND		ug/Kg		0	0 - 10	NC	30
8:2 FTCA	10.0	ND		ug/Kg		0	0 - 10	NC	30
10:2 FTCA	10.0	ND		ug/Kg		0	0 - 10	NC	30
PFECHS	9.24	8.80		ug/Kg		95	50 - 150	1	30
PFPoS	9.20	8.88		ug/Kg		96	50 - 150	7	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	10.0	8.16		ug/Kg		82	50 - 150	3	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	10.0	8.45		ug/Kg		85	50 - 150	5	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	10.0	12.7		ug/Kg		127	50 - 150	7	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	8.92	8.77		ug/Kg		98	50 - 150	5	30
Perfluoro-2-methoxyacetic acid (PFMOAA)	10.0	6.73		ug/Kg		67	50 - 150	18	30
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	10.0	7.40		ug/Kg		74	50 - 150	10	30

Eurofins Sacramento

# QC Sample Results

Client: Hawaii Department of Health  
 Project/Site: Background Study

Job ID: 320-105223-1

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

Lab Sample ID: LCSD 320-722691/3-A

Matrix: Solid

Analysis Batch: 726774

Client Sample ID: Lab Control Sample Dup

Prep Type: Post-Treatment

Prep Batch: 722691

Analyte	Spike Added	LCSD	LCSD	Unit	D	%Rec	%Rec	RPD	RPD
		Result	Qualifier				Limits		
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	10.0	9.09		ug/Kg		91	50 - 150	14	30
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	10.0	8.47		ug/Kg		85	50 - 150	7	30
PFO5DA	10.0	8.25		ug/Kg		82	50 - 150	6	30
PMPA	10.0	6.85		ug/Kg		69	50 - 150	7	30
PEPA	10.0	7.13		ug/Kg		71	50 - 150	4	30
R-EVE	10.0	11.4		ug/Kg		114	50 - 150	5	30
NVHOS	10.0	ND		ug/Kg		0	0 - 10	NC	30
Hydro-EVE Acid	10.0	ND		ug/Kg		0	0 - 10	NC	30
Hydro-PS Acid	10.0	ND		ug/Kg		0	0 - 10	NC	30

Isotope Dilution	LCSD	LCSD	Limits
	%Recovery	Qualifier	
13C8 FOSA	92		25 - 150
13C4 PFBA	103		25 - 150
13C5 PFPeA	106		25 - 150
13C2 PFHxA	107		25 - 150
13C4 PFHpA	123		25 - 150
13C4 PFOA	107		25 - 150
13C5 PFNA	110		25 - 150
13C2 PFDA	110		25 - 150
13C2 PFUnA	117		25 - 150
13C2 PFDoA	108		25 - 150
13C2 PFTeDA	88		25 - 150
13C2 PFHxDA	123		25 - 150
13C3 PFBS	103		25 - 150
18O2 PFHxS	105		25 - 150
13C4 PFOS	103		25 - 150
d3-NMeFOSAA	117		25 - 150
d5-NEtFOSAA	114		25 - 150
M2-4:2 FTS	0		0 - 10
M2-6:2 FTS	129		25 - 150
M2-8:2 FTS	130		25 - 150
13C2 10:2 FTS	98		25 - 150
d-N-MeFOSA-M	79		25 - 150
d-N-EtFOSA-M	77		25 - 150
d7-N-MeFOSE-M	98		25 - 150
d9-N-EtFOSE-M	81		25 - 150
13C3 HFPO-DA	117		25 - 150
13C-6:2 FTCA	96		25 - 150
13C-8:2 FTCA	103		25 - 150
13C-10:2 FTCA	148		25 - 150

# QC Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

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

**Lab Sample ID: MB 320-710937/1-A**  
**Matrix: Solid**  
**Analysis Batch: 714124**

**Client Sample ID: Method Blank**  
**Prep Type: Pre-Treatment**  
**Prep Batch: 710937**

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS) - RA	ND		1.0		ug/Kg		09/19/23 22:00	10/18/23 23:37	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
M2-4:2 FTS - RA	108		25 - 150				09/19/23 22:00	10/18/23 23:37	1

**Lab Sample ID: LCS 320-710937/2-A**  
**Matrix: Solid**  
**Analysis Batch: 714124**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Pre-Treatment**  
**Prep Batch: 710937**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS) - RA	9.38	11.9		ug/Kg		127	68 - 143
Isotope Dilution	%Recovery	Qualifier	Limits				
M2-4:2 FTS - RA	111		25 - 150				

**Lab Sample ID: LCSD 320-710937/3-A**  
**Matrix: Solid**  
**Analysis Batch: 714124**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Pre-Treatment**  
**Prep Batch: 710937**

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) - RA	9.38	11.4		ug/Kg		122	68 - 143	4	30
Isotope Dilution	%Recovery	Qualifier	Limits						
M2-4:2 FTS - RA	107		25 - 150						

**Lab Sample ID: MB 320-710936/1-A**  
**Matrix: Solid**  
**Analysis Batch: 714124**

**Client Sample ID: Method Blank**  
**Prep Type: Post-Treatment**  
**Prep Batch: 710936**

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoroheptylpropanoic acid (7:3 FTCA) - RA	ND		1.0		ug/Kg		09/19/23 21:50	10/18/23 22:30	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C-8:2 FTCA - RA	78		25 - 150				09/19/23 21:50	10/18/23 22:30	1

**Lab Sample ID: LCS 320-710936/2-A**  
**Matrix: Solid**  
**Analysis Batch: 714124**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Post-Treatment**  
**Prep Batch: 710936**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
3-Perfluoroheptylpropanoic acid (7:3 FTCA) - RA	10.0	ND		ug/Kg		0	0 - 10
Isotope Dilution	%Recovery	Qualifier	Limits				
13C-8:2 FTCA - RA	88		25 - 150				

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# QC Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

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

**Lab Sample ID: LCSD 320-710936/3-A**  
**Matrix: Solid**  
**Analysis Batch: 714124**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Post-Treatment**  
**Prep Batch: 710936**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
3-Perfluoroheptylpropanoic acid (7:3 FTCA) - RA	10.0	ND		ug/Kg		0	0 - 10	NC	30
<b>Isotope Dilution</b>		<b>%Recovery</b>	<b>Qualifier</b>						<b>Limits</b>
13C-8:2 FTCA - RA		81							25 - 150

## Method: 537 (modified) - Fluorinated Alkyl Substances - RA2

**Lab Sample ID: MB 320-710937/1-A**  
**Matrix: Solid**  
**Analysis Batch: 715556**

**Client Sample ID: Method Blank**  
**Prep Type: Pre-Treatment**  
**Prep Batch: 710937**

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid (3:3 FTCA) - RA2	ND		1.0		ug/Kg		09/19/23 22:00	10/24/23 01:37	1
<b>Isotope Dilution</b>		<b>%Recovery</b>	<b>Qualifier</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
13C3 PFBS - RA2		81					09/19/23 22:00	10/24/23 01:37	1

**Lab Sample ID: LCS 320-710937/2-A**  
**Matrix: Solid**  
**Analysis Batch: 715556**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Pre-Treatment**  
**Prep Batch: 710937**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
3-Perfluoropropylpropanoic acid (3:3 FTCA) - RA2	10.0	12.6		ug/Kg		126	50 - 150		
<b>Isotope Dilution</b>		<b>%Recovery</b>	<b>Qualifier</b>						<b>Limits</b>
13C3 PFBS - RA2		89							25 - 150

**Lab Sample ID: LCSD 320-710937/3-A**  
**Matrix: Solid**  
**Analysis Batch: 715556**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Pre-Treatment**  
**Prep Batch: 710937**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
3-Perfluoropropylpropanoic acid (3:3 FTCA) - RA2	10.0	9.64		ug/Kg		96	50 - 150	27	30
<b>Isotope Dilution</b>		<b>%Recovery</b>	<b>Qualifier</b>						<b>Limits</b>
13C3 PFBS - RA2		81							25 - 150

**Lab Sample ID: MB 320-710936/1-A**  
**Matrix: Solid**  
**Analysis Batch: 715555**

**Client Sample ID: Method Blank**  
**Prep Type: Post-Treatment**  
**Prep Batch: 710936**

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
3-Perfluoropropylpropanoic acid (3:3 FTCA) - RA2	ND		1.0		ug/Kg		09/19/23 21:50	10/23/23 21:53	1
<b>Isotope Dilution</b>		<b>%Recovery</b>	<b>Qualifier</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
13C3 PFBS - RA2		83					09/19/23 21:50	10/23/23 21:53	1

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# QC Sample Results

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

## Method: 537 (modified) - Fluorinated Alkyl Substances - RA2

**Lab Sample ID: LCS 320-710936/2-A**  
**Matrix: Solid**  
**Analysis Batch: 715555**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Post-Treatment**  
**Prep Batch: 710936**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
3-Perfluoropropylpropanoic acid (3:3 FTCA) - RA2	10.0	ND		ug/Kg		0	0 - 10
<i>Isotope Dilution</i>		<i>LCS %Recovery</i>	<i>LCS Qualifier</i>				<i>Limits</i>
13C3 PFBS - RA2		87					25 - 150

**Lab Sample ID: LCSD 320-710936/3-A**  
**Matrix: Solid**  
**Analysis Batch: 715555**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Post-Treatment**  
**Prep Batch: 710936**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
3-Perfluoropropylpropanoic acid (3:3 FTCA) - RA2	10.0	ND		ug/Kg		0	0 - 10	NC	30
<i>Isotope Dilution</i>		<i>LCSD %Recovery</i>	<i>LCSD Qualifier</i>				<i>Limits</i>		<i>Limits</i>
13C3 PFBS - RA2		88					25 - 150		

## Method: CIC EOF - Extractable Organic Fluorine by Combustion Ion Chromatography

**Lab Sample ID: MB 320-718918/1-A**  
**Matrix: Solid**  
**Analysis Batch: 719404**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 718918**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Extractable Organic Fluorine (EOF)	ND		500		ng/g		11/08/23 13:11	11/10/23 01:51	1

**Lab Sample ID: LCS 320-718918/2-A**  
**Matrix: Solid**  
**Analysis Batch: 719404**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 718918**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Extractable Organic Fluorine (EOF)	5070	5640		ng/g		111	50 - 150

**Lab Sample ID: LCSD 320-718918/3-A**  
**Matrix: Solid**  
**Analysis Batch: 719404**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 718918**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Extractable Organic Fluorine (EOF)	5070	5780		ng/g		114	50 - 150	2	20

# QC Association Summary

Client: Hawaii Department of Health  
 Project/Site: Background Study

Job ID: 320-105223-1

## LCMS

### Prep Batch: 709746

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105223-10	SOURCE BLANK	Total/NA	Water	3535	
320-105223-11	EQUIPMENT BLANK	Total/NA	Water	3535	
320-105223-11 - RA	EQUIPMENT BLANK	Total/NA	Water	3535	
MB 320-709746/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-709746/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-709746/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

### Analysis Batch: 710118

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105223-10	SOURCE BLANK	Total/NA	Water	537 (modified)	709746
320-105223-11	EQUIPMENT BLANK	Total/NA	Water	537 (modified)	709746
MB 320-709746/1-A	Method Blank	Total/NA	Water	537 (modified)	709746
LCS 320-709746/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	709746
LCSD 320-709746/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	709746

### Prep Batch: 710936

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105223-1	KOKEE-BCKG	Post-Treatment	Solid	TOP Post-Prep	
320-105223-1 - RA2	KOKEE-BCKG	Post-Treatment	Solid	TOP Post-Prep	
320-105223-1 - RA	KOKEE-BCKG	Post-Treatment	Solid	TOP Post-Prep	
320-105223-2 - RA2	ML#1-PFAS-BCKG	Post-Treatment	Solid	TOP Post-Prep	
320-105223-2 - RA	ML#1-PFAS-BCKG	Post-Treatment	Solid	TOP Post-Prep	
320-105223-2	ML#1-PFAS-BCKG	Post-Treatment	Solid	TOP Post-Prep	
320-105223-3 - RA	KUD-PFAS-BCKG	Post-Treatment	Solid	TOP Post-Prep	
320-105223-3	KUD-PFAS-BCKG	Post-Treatment	Solid	TOP Post-Prep	
320-105223-4 - RA	KALOLI POINT-BCKG	Post-Treatment	Solid	TOP Post-Prep	
320-105223-4	KALOLI POINT-BCKG	Post-Treatment	Solid	TOP Post-Prep	
320-105223-5	POLI-PFAS-BCKG	Post-Treatment	Solid	TOP Post-Prep	
320-105223-6 - RA	MAK-PFHI-BCKG	Post-Treatment	Solid	TOP Post-Prep	
320-105223-6	MAK-PFHI-BCKG	Post-Treatment	Solid	TOP Post-Prep	
320-105223-7 - RA	MP-BCKG	Post-Treatment	Solid	TOP Post-Prep	
320-105223-7	MP-BCKG	Post-Treatment	Solid	TOP Post-Prep	
320-105223-8 - RA	NPALI-BCKG	Post-Treatment	Solid	TOP Post-Prep	
320-105223-8	NPALI-BCKG	Post-Treatment	Solid	TOP Post-Prep	
320-105223-9	KP-BCKG	Post-Treatment	Solid	TOP Post-Prep	
320-105223-9 - RA	KP-BCKG	Post-Treatment	Solid	TOP Post-Prep	
MB 320-710936/1-A	Method Blank	Post-Treatment	Solid	TOP Post-Prep	
MB 320-710936/1-A - RA2	Method Blank	Post-Treatment	Solid	TOP Post-Prep	
MB 320-710936/1-A - RA	Method Blank	Post-Treatment	Solid	TOP Post-Prep	
LCS 320-710936/2-A	Lab Control Sample	Post-Treatment	Solid	TOP Post-Prep	
LCS 320-710936/2-A - RA	Lab Control Sample	Post-Treatment	Solid	TOP Post-Prep	
LCS 320-710936/2-A - RA2	Lab Control Sample	Post-Treatment	Solid	TOP Post-Prep	
LCSD 320-710936/3-A - RA2	Lab Control Sample Dup	Post-Treatment	Solid	TOP Post-Prep	
LCSD 320-710936/3-A - RA	Lab Control Sample Dup	Post-Treatment	Solid	TOP Post-Prep	
LCSD 320-710936/3-A	Lab Control Sample Dup	Post-Treatment	Solid	TOP Post-Prep	

### Prep Batch: 710937

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105223-1	KOKEE-BCKG	Pre-Treatment	Solid	TOP Pre-Prep	
320-105223-1 - RA2	KOKEE-BCKG	Pre-Treatment	Solid	TOP Pre-Prep	
320-105223-1 - RA	KOKEE-BCKG	Pre-Treatment	Solid	TOP Pre-Prep	

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# QC Association Summary

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

## LCMS (Continued)

### Prep Batch: 710937 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105223-2	ML#1-PFAS-BCKG	Pre-Treatment	Solid	TOP Pre-Prep	
320-105223-2 - RA	ML#1-PFAS-BCKG	Pre-Treatment	Solid	TOP Pre-Prep	
320-105223-2 - RA2	ML#1-PFAS-BCKG	Pre-Treatment	Solid	TOP Pre-Prep	
320-105223-3 - RA2	KUD-PFAS-BCKG	Pre-Treatment	Solid	TOP Pre-Prep	
320-105223-3	KUD-PFAS-BCKG	Pre-Treatment	Solid	TOP Pre-Prep	
320-105223-3 - RA	KUD-PFAS-BCKG	Pre-Treatment	Solid	TOP Pre-Prep	
320-105223-4	KALOLI POINT-BCKG	Pre-Treatment	Solid	TOP Pre-Prep	
320-105223-4 - RA	KALOLI POINT-BCKG	Pre-Treatment	Solid	TOP Pre-Prep	
320-105223-4 - RA2	KALOLI POINT-BCKG	Pre-Treatment	Solid	TOP Pre-Prep	
320-105223-5 - RA2	POLI-PFAS-BCKG	Pre-Treatment	Solid	TOP Pre-Prep	
320-105223-5 - RA	POLI-PFAS-BCKG	Pre-Treatment	Solid	TOP Pre-Prep	
320-105223-5	POLI-PFAS-BCKG	Pre-Treatment	Solid	TOP Pre-Prep	
320-105223-6 - RA2	MAK-PFHI-BCKG	Pre-Treatment	Solid	TOP Pre-Prep	
320-105223-6 - RA	MAK-PFHI-BCKG	Pre-Treatment	Solid	TOP Pre-Prep	
320-105223-6	MAK-PFHI-BCKG	Pre-Treatment	Solid	TOP Pre-Prep	
320-105223-7	MP-BCKG	Pre-Treatment	Solid	TOP Pre-Prep	
320-105223-7 - RA	MP-BCKG	Pre-Treatment	Solid	TOP Pre-Prep	
320-105223-7 - RA2	MP-BCKG	Pre-Treatment	Solid	TOP Pre-Prep	
320-105223-8	NPALI-BCKG	Pre-Treatment	Solid	TOP Pre-Prep	
320-105223-8 - RA	NPALI-BCKG	Pre-Treatment	Solid	TOP Pre-Prep	
320-105223-8 - RA2	NPALI-BCKG	Pre-Treatment	Solid	TOP Pre-Prep	
320-105223-9 - RA2	KP-BCKG	Pre-Treatment	Solid	TOP Pre-Prep	
320-105223-9 - RA	KP-BCKG	Pre-Treatment	Solid	TOP Pre-Prep	
320-105223-9	KP-BCKG	Pre-Treatment	Solid	TOP Pre-Prep	
MB 320-710937/1-A	Method Blank	Pre-Treatment	Solid	TOP Pre-Prep	
MB 320-710937/1-A - RA	Method Blank	Pre-Treatment	Solid	TOP Pre-Prep	
MB 320-710937/1-A - RA2	Method Blank	Pre-Treatment	Solid	TOP Pre-Prep	
LCS 320-710937/2-A	Lab Control Sample	Pre-Treatment	Solid	TOP Pre-Prep	
LCS 320-710937/2-A - RA2	Lab Control Sample	Pre-Treatment	Solid	TOP Pre-Prep	
LCS 320-710937/2-A - RA	Lab Control Sample	Pre-Treatment	Solid	TOP Pre-Prep	
LCSD 320-710937/3-A	Lab Control Sample Dup	Pre-Treatment	Solid	TOP Pre-Prep	
LCSD 320-710937/3-A - RA	Lab Control Sample Dup	Pre-Treatment	Solid	TOP Pre-Prep	
LCSD 320-710937/3-A - RA2	Lab Control Sample Dup	Pre-Treatment	Solid	TOP Pre-Prep	

### Analysis Batch: 713697

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105223-1	KOKEE-BCKG	Pre-Treatment	Solid	537 (modified)	710937
320-105223-2	ML#1-PFAS-BCKG	Pre-Treatment	Solid	537 (modified)	710937
320-105223-3	KUD-PFAS-BCKG	Pre-Treatment	Solid	537 (modified)	710937
320-105223-4	KALOLI POINT-BCKG	Pre-Treatment	Solid	537 (modified)	710937
320-105223-5	POLI-PFAS-BCKG	Pre-Treatment	Solid	537 (modified)	710937
320-105223-6	MAK-PFHI-BCKG	Pre-Treatment	Solid	537 (modified)	710937
320-105223-7	MP-BCKG	Pre-Treatment	Solid	537 (modified)	710937
320-105223-8	NPALI-BCKG	Pre-Treatment	Solid	537 (modified)	710937
320-105223-9	KP-BCKG	Pre-Treatment	Solid	537 (modified)	710937
MB 320-710937/1-A	Method Blank	Pre-Treatment	Solid	537 (modified)	710937
LCS 320-710937/2-A	Lab Control Sample	Pre-Treatment	Solid	537 (modified)	710937
LCSD 320-710937/3-A	Lab Control Sample Dup	Pre-Treatment	Solid	537 (modified)	710937

# QC Association Summary

Client: Hawaii Department of Health  
 Project/Site: Background Study

Job ID: 320-105223-1

## LCMS

### Analysis Batch: 713698

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105223-1	KOKEE-BCKG	Post-Treatment	Solid	537 (modified)	710936
320-105223-2	ML#1-PFAS-BCKG	Post-Treatment	Solid	537 (modified)	710936
320-105223-3	KUD-PFAS-BCKG	Post-Treatment	Solid	537 (modified)	710936
320-105223-4	KALOLI POINT-BCKG	Post-Treatment	Solid	537 (modified)	710936
320-105223-5	POLI-PFAS-BCKG	Post-Treatment	Solid	537 (modified)	710936
320-105223-6	MAK-PFHI-BCKG	Post-Treatment	Solid	537 (modified)	710936
320-105223-7	MP-BCKG	Post-Treatment	Solid	537 (modified)	710936
320-105223-8	NPALI-BCKG	Post-Treatment	Solid	537 (modified)	710936
320-105223-9	KP-BCKG	Post-Treatment	Solid	537 (modified)	710936
MB 320-710936/1-A	Method Blank	Post-Treatment	Solid	537 (modified)	710936
LCS 320-710936/2-A	Lab Control Sample	Post-Treatment	Solid	537 (modified)	710936
LCSD 320-710936/3-A	Lab Control Sample Dup	Post-Treatment	Solid	537 (modified)	710936

### Analysis Batch: 714124

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105223-1 - RA	KOKEE-BCKG	Post-Treatment	Solid	537 (modified)	710936
320-105223-1 - RA	KOKEE-BCKG	Pre-Treatment	Solid	537 (modified)	710937
320-105223-2 - RA	ML#1-PFAS-BCKG	Post-Treatment	Solid	537 (modified)	710936
320-105223-2 - RA	ML#1-PFAS-BCKG	Pre-Treatment	Solid	537 (modified)	710937
320-105223-3 - RA	KUD-PFAS-BCKG	Pre-Treatment	Solid	537 (modified)	710937
320-105223-4 - RA	KALOLI POINT-BCKG	Pre-Treatment	Solid	537 (modified)	710937
320-105223-5 - RA	POLI-PFAS-BCKG	Pre-Treatment	Solid	537 (modified)	710937
320-105223-6 - RA	MAK-PFHI-BCKG	Pre-Treatment	Solid	537 (modified)	710937
320-105223-7 - RA	MP-BCKG	Pre-Treatment	Solid	537 (modified)	710937
320-105223-8 - RA	NPALI-BCKG	Pre-Treatment	Solid	537 (modified)	710937
320-105223-9 - RA	KP-BCKG	Pre-Treatment	Solid	537 (modified)	710937
MB 320-710936/1-A - RA	Method Blank	Post-Treatment	Solid	537 (modified)	710936
MB 320-710937/1-A - RA	Method Blank	Pre-Treatment	Solid	537 (modified)	710937
LCS 320-710936/2-A - RA	Lab Control Sample	Post-Treatment	Solid	537 (modified)	710936
LCS 320-710937/2-A - RA	Lab Control Sample	Pre-Treatment	Solid	537 (modified)	710937
LCSD 320-710936/3-A - RA	Lab Control Sample Dup	Post-Treatment	Solid	537 (modified)	710936
LCSD 320-710937/3-A - RA	Lab Control Sample Dup	Pre-Treatment	Solid	537 (modified)	710937

### Analysis Batch: 715555

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105223-1 - RA2	KOKEE-BCKG	Post-Treatment	Solid	537 (modified)	710936
320-105223-2 - RA2	ML#1-PFAS-BCKG	Post-Treatment	Solid	537 (modified)	710936
320-105223-3 - RA	KUD-PFAS-BCKG	Post-Treatment	Solid	537 (modified)	710936
320-105223-4 - RA	KALOLI POINT-BCKG	Post-Treatment	Solid	537 (modified)	710936
320-105223-6 - RA	MAK-PFHI-BCKG	Post-Treatment	Solid	537 (modified)	710936
320-105223-7 - RA	MP-BCKG	Post-Treatment	Solid	537 (modified)	710936
320-105223-8 - RA	NPALI-BCKG	Post-Treatment	Solid	537 (modified)	710936
320-105223-9 - RA	KP-BCKG	Post-Treatment	Solid	537 (modified)	710936
MB 320-710936/1-A - RA2	Method Blank	Post-Treatment	Solid	537 (modified)	710936
LCS 320-710936/2-A - RA2	Lab Control Sample	Post-Treatment	Solid	537 (modified)	710936
LCSD 320-710936/3-A - RA2	Lab Control Sample Dup	Post-Treatment	Solid	537 (modified)	710936

### Analysis Batch: 715556

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105223-1 - RA2	KOKEE-BCKG	Pre-Treatment	Solid	537 (modified)	710937
320-105223-2 - RA2	ML#1-PFAS-BCKG	Pre-Treatment	Solid	537 (modified)	710937

# QC Association Summary

Client: Hawaii Department of Health  
 Project/Site: Background Study

Job ID: 320-105223-1

## LCMS (Continued)

### Analysis Batch: 715556 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105223-3 - RA2	KUD-PFAS-BCKG	Pre-Treatment	Solid	537 (modified)	710937
320-105223-4 - RA2	KALOLI POINT-BCKG	Pre-Treatment	Solid	537 (modified)	710937
320-105223-5 - RA2	POLI-PFAS-BCKG	Pre-Treatment	Solid	537 (modified)	710937
320-105223-6 - RA2	MAK-PFHI-BCKG	Pre-Treatment	Solid	537 (modified)	710937
320-105223-7 - RA2	MP-BCKG	Pre-Treatment	Solid	537 (modified)	710937
320-105223-8 - RA2	NPALI-BCKG	Pre-Treatment	Solid	537 (modified)	710937
320-105223-9 - RA2	KP-BCKG	Pre-Treatment	Solid	537 (modified)	710937
MB 320-710937/1-A - RA2	Method Blank	Pre-Treatment	Solid	537 (modified)	710937
LCS 320-710937/2-A - RA2	Lab Control Sample	Pre-Treatment	Solid	537 (modified)	710937
LCSD 320-710937/3-A - RA2	Lab Control Sample Dup	Pre-Treatment	Solid	537 (modified)	710937

### Analysis Batch: 716488

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105223-1	KOKEE-BCKG	Pre-Treatment	Solid	Total PFCA-Sum	
320-105223-2	ML#1-PFAS-BCKG	Pre-Treatment	Solid	Total PFCA-Sum	
320-105223-3	KUD-PFAS-BCKG	Pre-Treatment	Solid	Total PFCA-Sum	
320-105223-4	KALOLI POINT-BCKG	Pre-Treatment	Solid	Total PFCA-Sum	
320-105223-5	POLI-PFAS-BCKG	Pre-Treatment	Solid	Total PFCA-Sum	
320-105223-6	MAK-PFHI-BCKG	Pre-Treatment	Solid	Total PFCA-Sum	
320-105223-7	MP-BCKG	Pre-Treatment	Solid	Total PFCA-Sum	
320-105223-8	NPALI-BCKG	Pre-Treatment	Solid	Total PFCA-Sum	
320-105223-9	KP-BCKG	Pre-Treatment	Solid	Total PFCA-Sum	

### Analysis Batch: 716489

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105223-1	KOKEE-BCKG	Post-Treatment	Solid	Total PFCA-Sum	
320-105223-2	ML#1-PFAS-BCKG	Post-Treatment	Solid	Total PFCA-Sum	
320-105223-3	KUD-PFAS-BCKG	Post-Treatment	Solid	Total PFCA-Sum	
320-105223-4	KALOLI POINT-BCKG	Post-Treatment	Solid	Total PFCA-Sum	
320-105223-5	POLI-PFAS-BCKG	Post-Treatment	Solid	Total PFCA-Sum	
320-105223-6	MAK-PFHI-BCKG	Post-Treatment	Solid	Total PFCA-Sum	
320-105223-7	MP-BCKG	Post-Treatment	Solid	Total PFCA-Sum	
320-105223-8	NPALI-BCKG	Post-Treatment	Solid	Total PFCA-Sum	
320-105223-9	KP-BCKG	Post-Treatment	Solid	Total PFCA-Sum	

### Analysis Batch: 716490

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105223-1	KOKEE-BCKG	Total/NA	Solid	Total PFCA-Dif	
320-105223-2	ML#1-PFAS-BCKG	Total/NA	Solid	Total PFCA-Dif	
320-105223-3	KUD-PFAS-BCKG	Total/NA	Solid	Total PFCA-Dif	
320-105223-4	KALOLI POINT-BCKG	Total/NA	Solid	Total PFCA-Dif	
320-105223-5	POLI-PFAS-BCKG	Total/NA	Solid	Total PFCA-Dif	
320-105223-6	MAK-PFHI-BCKG	Total/NA	Solid	Total PFCA-Dif	
320-105223-7	MP-BCKG	Total/NA	Solid	Total PFCA-Dif	
320-105223-8	NPALI-BCKG	Total/NA	Solid	Total PFCA-Dif	
320-105223-9	KP-BCKG	Total/NA	Solid	Total PFCA-Dif	

### Prep Batch: 718918

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105223-1	KOKEE-BCKG	Total/NA	Solid	EOF Prep	
320-105223-2	ML#1-PFAS-BCKG	Total/NA	Solid	EOF Prep	

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# QC Association Summary

Client: Hawaii Department of Health  
 Project/Site: Background Study

Job ID: 320-105223-1

## LCMS (Continued)

### Prep Batch: 718918 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105223-3	KUD-PFAS-BCKG	Total/NA	Solid	EOF Prep	
320-105223-4	KALOLI POINT-BCKG	Total/NA	Solid	EOF Prep	
320-105223-5	POLI-PFAS-BCKG	Total/NA	Solid	EOF Prep	
320-105223-6	MAK-PFHI-BCKG	Total/NA	Solid	EOF Prep	
320-105223-7	MP-BCKG	Total/NA	Solid	EOF Prep	
320-105223-8	NPALI-BCKG	Total/NA	Solid	EOF Prep	
320-105223-9	KP-BCKG	Total/NA	Solid	EOF Prep	
MB 320-718918/1-A	Method Blank	Total/NA	Solid	EOF Prep	
LCS 320-718918/2-A	Lab Control Sample	Total/NA	Solid	EOF Prep	
LCSD 320-718918/3-A	Lab Control Sample Dup	Total/NA	Solid	EOF Prep	

### Analysis Batch: 719404

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105223-1	KOKEE-BCKG	Total/NA	Solid	CIC EOF	718918
320-105223-2	ML#1-PFAS-BCKG	Total/NA	Solid	CIC EOF	718918
320-105223-3	KUD-PFAS-BCKG	Total/NA	Solid	CIC EOF	718918
320-105223-4	KALOLI POINT-BCKG	Total/NA	Solid	CIC EOF	718918
320-105223-5	POLI-PFAS-BCKG	Total/NA	Solid	CIC EOF	718918
320-105223-6	MAK-PFHI-BCKG	Total/NA	Solid	CIC EOF	718918
320-105223-7	MP-BCKG	Total/NA	Solid	CIC EOF	718918
320-105223-8	NPALI-BCKG	Total/NA	Solid	CIC EOF	718918
320-105223-9	KP-BCKG	Total/NA	Solid	CIC EOF	718918
MB 320-718918/1-A	Method Blank	Total/NA	Solid	CIC EOF	718918
LCS 320-718918/2-A	Lab Control Sample	Total/NA	Solid	CIC EOF	718918
LCSD 320-718918/3-A	Lab Control Sample Dup	Total/NA	Solid	CIC EOF	718918

### Analysis Batch: 719994

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105223-11 - RA	EQUIPMENT BLANK	Total/NA	Water	537 (modified)	709746

### Prep Batch: 722691

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105223-5 - RE	POLI-PFAS-BCKG	Post-Treatment	Solid	TOP Post-Prep	
MB 320-722691/1-A	Method Blank	Post-Treatment	Solid	TOP Post-Prep	
LCS 320-722691/2-A	Lab Control Sample	Post-Treatment	Solid	TOP Post-Prep	
LCSD 320-722691/3-A	Lab Control Sample Dup	Post-Treatment	Solid	TOP Post-Prep	

### Analysis Batch: 726774

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105223-5 - RE	POLI-PFAS-BCKG	Post-Treatment	Solid	537 (modified)	722691
MB 320-722691/1-A	Method Blank	Post-Treatment	Solid	537 (modified)	722691
LCS 320-722691/2-A	Lab Control Sample	Post-Treatment	Solid	537 (modified)	722691
LCSD 320-722691/3-A	Lab Control Sample Dup	Post-Treatment	Solid	537 (modified)	722691

## General Chemistry

### Analysis Batch: 711418

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105223-1	KOKEE-BCKG	Total/NA	Solid	Increment, Prep	
320-105223-2	ML#1-PFAS-BCKG	Total/NA	Solid	Increment, Prep	
320-105223-3	KUD-PFAS-BCKG	Total/NA	Solid	Increment, Prep	

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# QC Association Summary

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

## General Chemistry (Continued)

### Analysis Batch: 711418 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-105223-4	KALOLI POINT-BCKG	Total/NA	Solid	Increment, Prep	
320-105223-5	POLI-PFAS-BCKG	Total/NA	Solid	Increment, Prep	
320-105223-6	MAK-PFHI-BCKG	Total/NA	Solid	Increment, Prep	
320-105223-7	MP-BCKG	Total/NA	Solid	Increment, Prep	
320-105223-8	NPALI-BCKG	Total/NA	Solid	Increment, Prep	
320-105223-9	KP-BCKG	Total/NA	Solid	Increment, Prep	
320-105223-1 MS	KOKEE-BCKG	Total/NA	Solid	Increment, Prep	
320-105223-1 MSD	KOKEE-BCKG	Total/NA	Solid	Increment, Prep	

# Lab Chronicle

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: KOKEE-BCKG**

**Lab Sample ID: 320-105223-1**

Date Collected: 08/08/23 13:30

Matrix: Solid

Date Received: 09/26/23 09:05

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			1.02 g	10.0 mL	710936	10/04/23 23:09	FX	EET SAC
Post-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	713698	10/17/23 12:26	JRB	EET SAC
Post-Treatment	Prep	TOP Post-Prep	RA		1.02 g	10.0 mL	710936	10/04/23 23:09	FX	EET SAC
Post-Treatment	Analysis	537 (modified)	RA	1	1 mL	1 mL	714124	10/18/23 23:04	JRB	EET SAC
Post-Treatment	Prep	TOP Post-Prep	RA2		1.02 g	10.0 mL	710936	10/04/23 23:09	FX	EET SAC
Post-Treatment	Analysis	537 (modified)	RA2	1	1 mL	1 mL	715555	10/23/23 22:26	RS1	EET SAC
Pre-Treatment	Prep	TOP Pre-Prep			1.04 g	10.0 mL	710937	10/04/23 23:13	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	713697	10/17/23 07:54	JRB	EET SAC
Pre-Treatment	Prep	TOP Pre-Prep	RA		1.04 g	10.0 mL	710937	10/04/23 23:13	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)	RA	1	1 mL	1 mL	714124	10/19/23 00:11	JRB	EET SAC
Pre-Treatment	Prep	TOP Pre-Prep	RA2		1.04 g	10.0 mL	710937	10/04/23 23:13	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)	RA2	1	1 mL	1 mL	715556	10/24/23 02:11	RS1	EET SAC
Total/NA	Prep	EOF Prep			10.00 g	25 mL	718918	11/08/23 13:11	NK	EET SAC
Total/NA	Analysis	CIC EOF		1			719404	11/10/23 05:21	NK	EET SAC
Total/NA	Analysis	Total PFCA-Dif		1			716490	10/30/23 09:17	MKW	EET SAC
Post-Treatment	Analysis	Total PFCA-Sum		1			716489	10/17/23 12:26	MKW	EET SAC
Pre-Treatment	Analysis	Total PFCA-Sum		1			716488	10/17/23 07:54	MKW	EET SAC
Total/NA	Analysis	Increment, Prep		1			711418	10/06/23 13:37	FC	EET SAC

**Client Sample ID: ML#1-PFAS-BCKG**

**Lab Sample ID: 320-105223-2**

Date Collected: 09/12/23 17:00

Matrix: Solid

Date Received: 09/26/23 09:05

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			1.04 g	10.0 mL	710936	10/04/23 23:09	FX	EET SAC
Post-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	713698	10/17/23 12:37	JRB	EET SAC
Post-Treatment	Prep	TOP Post-Prep	RA		1.04 g	10.0 mL	710936	10/04/23 23:09	FX	EET SAC
Post-Treatment	Analysis	537 (modified)	RA	1	1 mL	1 mL	714124	10/18/23 23:15	JRB	EET SAC
Post-Treatment	Prep	TOP Post-Prep	RA2		1.04 g	10.0 mL	710936	10/04/23 23:09	FX	EET SAC
Post-Treatment	Analysis	537 (modified)	RA2	1	1 mL	1 mL	715555	10/23/23 22:38	RS1	EET SAC
Pre-Treatment	Prep	TOP Pre-Prep			1.01 g	10.0 mL	710937	10/04/23 23:13	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	713697	10/17/23 08:05	JRB	EET SAC
Pre-Treatment	Prep	TOP Pre-Prep	RA		1.01 g	10.0 mL	710937	10/04/23 23:13	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)	RA	1	1 mL	1 mL	714124	10/19/23 00:22	JRB	EET SAC
Pre-Treatment	Prep	TOP Pre-Prep	RA2		1.01 g	10.0 mL	710937	10/04/23 23:13	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)	RA2	1	1 mL	1 mL	715556	10/24/23 02:22	RS1	EET SAC
Total/NA	Prep	EOF Prep			10.01 g	25 mL	718918	11/08/23 13:11	NK	EET SAC
Total/NA	Analysis	CIC EOF		1			719404	11/10/23 05:48	NK	EET SAC
Total/NA	Analysis	Total PFCA-Dif		1			716490	10/30/23 09:17	MKW	EET SAC
Post-Treatment	Analysis	Total PFCA-Sum		1			716489	10/17/23 12:37	MKW	EET SAC
Pre-Treatment	Analysis	Total PFCA-Sum		1			716488	10/17/23 08:05	MKW	EET SAC
Total/NA	Analysis	Increment, Prep		1			711418	10/06/23 13:37	FC	EET SAC

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# Lab Chronicle

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: KUD-PFAS-BCKG**

**Lab Sample ID: 320-105223-3**

Date Collected: 09/12/23 18:45

Matrix: Solid

Date Received: 09/26/23 09:05

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			1.04 g	10.0 mL	710936	10/04/23 23:09	FX	EET SAC
Post-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	713698	10/17/23 13:00	JRB	EET SAC
Post-Treatment	Prep	TOP Post-Prep	RA		1.04 g	10.0 mL	710936	10/04/23 23:09	FX	EET SAC
Post-Treatment	Analysis	537 (modified)	RA	1	1 mL	1 mL	715555	10/23/23 22:49	RS1	EET SAC
Pre-Treatment	Prep	TOP Pre-Prep			1.01 g	10.0 mL	710937	10/04/23 23:13	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	713697	10/17/23 08:28	JRB	EET SAC
Pre-Treatment	Prep	TOP Pre-Prep	RA		1.01 g	10.0 mL	710937	10/04/23 23:13	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)	RA	1	1 mL	1 mL	714124	10/19/23 00:33	JRB	EET SAC
Pre-Treatment	Prep	TOP Pre-Prep	RA2		1.01 g	10.0 mL	710937	10/04/23 23:13	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)	RA2	1	1 mL	1 mL	715556	10/24/23 02:33	RS1	EET SAC
Total/NA	Prep	EOF Prep			9.99 g	25 mL	718918	11/08/23 13:11	NK	EET SAC
Total/NA	Analysis	CIC EOF		1			719404	11/10/23 06:14	NK	EET SAC
Total/NA	Analysis	Total PFCA-Dif		1			716490	10/30/23 09:17	MKW	EET SAC
Post-Treatment	Analysis	Total PFCA-Sum		1			716489	10/17/23 13:00	MKW	EET SAC
Pre-Treatment	Analysis	Total PFCA-Sum		1			716488	10/17/23 08:28	MKW	EET SAC
Total/NA	Analysis	Increment, Prep		1			711418	10/06/23 13:37	FC	EET SAC

**Client Sample ID: KALOLI POINT-BCKG**

**Lab Sample ID: 320-105223-4**

Date Collected: 09/19/23 18:00

Matrix: Solid

Date Received: 09/26/23 09:05

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			1.01 g	10.0 mL	710936	10/04/23 23:09	FX	EET SAC
Post-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	713698	10/17/23 13:11	JRB	EET SAC
Post-Treatment	Prep	TOP Post-Prep	RA		1.01 g	10.0 mL	710936	10/04/23 23:09	FX	EET SAC
Post-Treatment	Analysis	537 (modified)	RA	1	1 mL	1 mL	715555	10/23/23 23:00	RS1	EET SAC
Pre-Treatment	Prep	TOP Pre-Prep			1.01 g	10.0 mL	710937	10/04/23 23:13	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	713697	10/17/23 08:39	JRB	EET SAC
Pre-Treatment	Prep	TOP Pre-Prep	RA		1.01 g	10.0 mL	710937	10/04/23 23:13	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)	RA	1	1 mL	1 mL	714124	10/19/23 00:44	JRB	EET SAC
Pre-Treatment	Prep	TOP Pre-Prep	RA2		1.01 g	10.0 mL	710937	10/04/23 23:13	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)	RA2	1	1 mL	1 mL	715556	10/24/23 02:44	RS1	EET SAC
Total/NA	Prep	EOF Prep			10.01 g	25 mL	718918	11/08/23 13:11	NK	EET SAC
Total/NA	Analysis	CIC EOF		1			719404	11/10/23 06:40	NK	EET SAC
Total/NA	Analysis	Total PFCA-Dif		1			716490	10/30/23 09:17	MKW	EET SAC
Post-Treatment	Analysis	Total PFCA-Sum		1			716489	10/17/23 13:11	MKW	EET SAC
Pre-Treatment	Analysis	Total PFCA-Sum		1			716488	10/17/23 08:39	MKW	EET SAC
Total/NA	Analysis	Increment, Prep		1			711418	10/06/23 13:37	FC	EET SAC

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# Lab Chronicle

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: POLI-PFAS-BCKG**

**Lab Sample ID: 320-105223-5**

Date Collected: 09/20/23 08:00

Matrix: Solid

Date Received: 09/26/23 09:05

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			1.04 g	10.0 mL	710936	10/04/23 23:09	FX	EET SAC
Post-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	713698	10/17/23 13:22	JRB	EET SAC
Post-Treatment	Prep	TOP Post-Prep	RE		1.03 g	10.0 mL	722691	11/22/23 19:22	FX	EET SAC
Post-Treatment	Analysis	537 (modified)	RE	1	1 mL	1 mL	726774	12/11/23 13:27	D1R	EET SAC
Pre-Treatment	Prep	TOP Pre-Prep			1.01 g	10.0 mL	710937	10/04/23 23:13	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	713697	10/17/23 08:50	JRB	EET SAC
Pre-Treatment	Prep	TOP Pre-Prep	RA		1.01 g	10.0 mL	710937	10/04/23 23:13	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)	RA	1	1 mL	1 mL	714124	10/19/23 00:55	JRB	EET SAC
Pre-Treatment	Prep	TOP Pre-Prep	RA2		1.01 g	10.0 mL	710937	10/04/23 23:13	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)	RA2	1	1 mL	1 mL	715556	10/24/23 02:55	RS1	EET SAC
Total/NA	Prep	EOF Prep			10.01 g	25 mL	718918	11/08/23 13:11	NK	EET SAC
Total/NA	Analysis	CIC EOF		1			719404	11/10/23 07:59	NK	EET SAC
Total/NA	Analysis	Total PFCA-Dif		1			716490	10/30/23 09:17	MKW	EET SAC
Post-Treatment	Analysis	Total PFCA-Sum		1			716489	12/11/23 13:27	MKW	EET SAC
Pre-Treatment	Analysis	Total PFCA-Sum		1			716488	10/17/23 08:50	MKW	EET SAC
Total/NA	Analysis	Increment, Prep		1			711418	10/06/23 13:37	FC	EET SAC

**Client Sample ID: MAK-PFHI-BCKG**

**Lab Sample ID: 320-105223-6**

Date Collected: 09/21/23 08:30

Matrix: Solid

Date Received: 09/26/23 09:05

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			1.01 g	10.0 mL	710936	10/04/23 23:09	FX	EET SAC
Post-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	713698	10/17/23 13:33	JRB	EET SAC
Post-Treatment	Prep	TOP Post-Prep	RA		1.01 g	10.0 mL	710936	10/04/23 23:09	FX	EET SAC
Post-Treatment	Analysis	537 (modified)	RA	1	1 mL	1 mL	715555	10/23/23 23:22	RS1	EET SAC
Pre-Treatment	Prep	TOP Pre-Prep			1.01 g	10.0 mL	710937	10/04/23 23:13	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	713697	10/17/23 09:01	JRB	EET SAC
Pre-Treatment	Prep	TOP Pre-Prep	RA		1.01 g	10.0 mL	710937	10/04/23 23:13	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)	RA	1	1 mL	1 mL	714124	10/19/23 01:06	JRB	EET SAC
Pre-Treatment	Prep	TOP Pre-Prep	RA2		1.01 g	10.0 mL	710937	10/04/23 23:13	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)	RA2	1	1 mL	1 mL	715556	10/24/23 03:06	RS1	EET SAC
Total/NA	Prep	EOF Prep			10.01 g	25 mL	718918	11/08/23 13:11	NK	EET SAC
Total/NA	Analysis	CIC EOF		1			719404	11/10/23 08:26	NK	EET SAC
Total/NA	Analysis	Total PFCA-Dif		1			716490	10/30/23 09:17	MKW	EET SAC
Post-Treatment	Analysis	Total PFCA-Sum		1			716489	10/17/23 13:33	MKW	EET SAC
Pre-Treatment	Analysis	Total PFCA-Sum		1			716488	10/17/23 09:01	MKW	EET SAC
Total/NA	Analysis	Increment, Prep		1			711418	10/06/23 13:37	FC	EET SAC

# Lab Chronicle

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

**Client Sample ID: MP-BCKG**

**Lab Sample ID: 320-105223-7**

Date Collected: 09/24/23 08:30

Matrix: Solid

Date Received: 09/26/23 09:05

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			1.02 g	10.0 mL	710936	10/04/23 23:09	FX	EET SAC
Post-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	713698	10/17/23 13:44	JRB	EET SAC
Post-Treatment	Prep	TOP Post-Prep	RA		1.02 g	10.0 mL	710936	10/04/23 23:09	FX	EET SAC
Post-Treatment	Analysis	537 (modified)	RA	1	1 mL	1 mL	715555	10/23/23 23:33	RS1	EET SAC
Pre-Treatment	Prep	TOP Pre-Prep			1.01 g	10.0 mL	710937	10/04/23 23:13	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	713697	10/17/23 09:12	JRB	EET SAC
Pre-Treatment	Prep	TOP Pre-Prep	RA		1.01 g	10.0 mL	710937	10/04/23 23:13	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)	RA	1	1 mL	1 mL	714124	10/19/23 01:18	JRB	EET SAC
Pre-Treatment	Prep	TOP Pre-Prep	RA2		1.01 g	10.0 mL	710937	10/04/23 23:13	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)	RA2	1	1 mL	1 mL	715556	10/24/23 03:18	RS1	EET SAC
Total/NA	Prep	EOF Prep			10.00 g	25 mL	718918	11/08/23 13:11	NK	EET SAC
Total/NA	Analysis	CIC EOF		1			719404	11/10/23 08:52	NK	EET SAC
Total/NA	Analysis	Total PFCA-Dif		1			716490	10/30/23 09:17	MKW	EET SAC
Post-Treatment	Analysis	Total PFCA-Sum		1			716489	10/17/23 13:44	MKW	EET SAC
Pre-Treatment	Analysis	Total PFCA-Sum		1			716488	10/17/23 09:12	MKW	EET SAC
Total/NA	Analysis	Increment, Prep		1			711418	10/06/23 13:37	FC	EET SAC

**Client Sample ID: NPALI-BCKG**

**Lab Sample ID: 320-105223-8**

Date Collected: 09/24/23 09:30

Matrix: Solid

Date Received: 09/26/23 09:05

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			1.03 g	10.0 mL	710936	10/04/23 23:09	FX	EET SAC
Post-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	713698	10/17/23 13:55	JRB	EET SAC
Post-Treatment	Prep	TOP Post-Prep	RA		1.03 g	10.0 mL	710936	10/04/23 23:09	FX	EET SAC
Post-Treatment	Analysis	537 (modified)	RA	1	1 mL	1 mL	715555	10/23/23 23:56	RS1	EET SAC
Pre-Treatment	Prep	TOP Pre-Prep			1.02 g	10.0 mL	710937	10/04/23 23:13	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	713697	10/17/23 09:23	JRB	EET SAC
Pre-Treatment	Prep	TOP Pre-Prep	RA		1.02 g	10.0 mL	710937	10/04/23 23:13	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)	RA	1	1 mL	1 mL	714124	10/19/23 01:40	JRB	EET SAC
Pre-Treatment	Prep	TOP Pre-Prep	RA2		1.02 g	10.0 mL	710937	10/04/23 23:13	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)	RA2	1	1 mL	1 mL	715556	10/24/23 03:40	RS1	EET SAC
Total/NA	Prep	EOF Prep			10.00 g	25 mL	718918	11/08/23 13:11	NK	EET SAC
Total/NA	Analysis	CIC EOF		1			719404	11/10/23 09:18	NK	EET SAC
Total/NA	Analysis	Total PFCA-Dif		1			716490	10/30/23 09:17	MKW	EET SAC
Post-Treatment	Analysis	Total PFCA-Sum		1			716489	10/17/23 13:55	MKW	EET SAC
Pre-Treatment	Analysis	Total PFCA-Sum		1			716488	10/17/23 09:23	MKW	EET SAC
Total/NA	Analysis	Increment, Prep		1			711418	10/06/23 13:37	FC	EET SAC

## Lab Chronicle

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

### Client Sample ID: KP-BCKG

Lab Sample ID: 320-105223-9

Date Collected: 09/24/23 12:30

Matrix: Solid

Date Received: 09/26/23 09:05

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			1.04 g	10.0 mL	710936	10/04/23 23:09	FX	EET SAC
Post-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	713698	10/17/23 14:07	JRB	EET SAC
Post-Treatment	Prep	TOP Post-Prep	RA		1.04 g	10.0 mL	710936	10/04/23 23:09	FX	EET SAC
Post-Treatment	Analysis	537 (modified)	RA	1	1 mL	1 mL	715555	10/24/23 00:07	RS1	EET SAC
Pre-Treatment	Prep	TOP Pre-Prep			1.01 g	10.0 mL	710937	10/04/23 23:13	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	713697	10/17/23 09:34	JRB	EET SAC
Pre-Treatment	Prep	TOP Pre-Prep	RA		1.01 g	10.0 mL	710937	10/04/23 23:13	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)	RA	1	1 mL	1 mL	714124	10/19/23 01:51	JRB	EET SAC
Pre-Treatment	Prep	TOP Pre-Prep	RA2		1.01 g	10.0 mL	710937	10/04/23 23:13	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)	RA2	1	1 mL	1 mL	715556	10/24/23 03:51	RS1	EET SAC
Total/NA	Prep	EOF Prep			10.00 g	25 mL	718918	11/08/23 13:11	NK	EET SAC
Total/NA	Analysis	CIC EOF		1			719404	11/10/23 09:45	NK	EET SAC
Total/NA	Analysis	Total PFCA-Dif		1			716490	10/30/23 09:17	MKW	EET SAC
Post-Treatment	Analysis	Total PFCA-Sum		1			716489	10/17/23 14:07	MKW	EET SAC
Pre-Treatment	Analysis	Total PFCA-Sum		1			716488	10/17/23 09:34	MKW	EET SAC
Total/NA	Analysis	Increment, Prep		1			711418	10/06/23 13:37	FC	EET SAC

### Client Sample ID: SOURCE BLANK

Lab Sample ID: 320-105223-10

Date Collected: 09/25/23 12:00

Matrix: Water

Date Received: 09/26/23 09:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			283.7 mL	10.0 mL	709746	09/28/23 20:35	ERR	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	710118	09/30/23 13:13	S1M	EET SAC

### Client Sample ID: EQUIPMENT BLANK

Lab Sample ID: 320-105223-11

Date Collected: 09/25/23 12:15

Matrix: Water

Date Received: 09/26/23 09:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			286.2 mL	10.0 mL	709746	09/28/23 20:35	ERR	EET SAC
Total/NA	Analysis	537 (modified)		1	1 mL	1 mL	710118	09/30/23 13:33	S1M	EET SAC
Total/NA	Prep	3535	RA		286.2 mL	10.0 mL	709746	09/28/23 20:35	ERR	EET SAC
Total/NA	Analysis	537 (modified)	RA	1	1 mL	1 mL	719994	11/13/23 16:41	AP1	EET SAC

**Laboratory References:**

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

# Accreditation/Certification Summary

Client: Hawaii Department of Health  
 Project/Site: Background Study

Job ID: 320-105223-1

## 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

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)	3535	Water	10:2 FTCA
537 (modified)	3535	Water	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)
537 (modified)	3535	Water	1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)
537 (modified)	3535	Water	1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)
537 (modified)	3535	Water	1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)
537 (modified)	3535	Water	1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)
537 (modified)	3535	Water	3-Perfluoroheptylpropanoic acid (7:3 FTCA)
537 (modified)	3535	Water	3-Perfluoropentylpropanoic acid (5:3 FTCA)
537 (modified)	3535	Water	3-Perfluoropropylpropanoic acid (3:3 FTCA)
537 (modified)	3535	Water	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)
537 (modified)	3535	Water	6:2 FTCA
537 (modified)	3535	Water	8:2 FTCA
537 (modified)	3535	Water	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)
537 (modified)	3535	Water	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)
537 (modified)	3535	Water	Hydro-EVE Acid
537 (modified)	3535	Water	Hydro-PS Acid
537 (modified)	3535	Water	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)
537 (modified)	3535	Water	N-ethylperfluorooctane sulfonamide (NEtFOSA)
537 (modified)	3535	Water	N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)
537 (modified)	3535	Water	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)
537 (modified)	3535	Water	N-methylperfluorooctane sulfonamide (NMeFOSA)
537 (modified)	3535	Water	N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)
537 (modified)	3535	Water	Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)
537 (modified)	3535	Water	NVHOS
537 (modified)	3535	Water	PEPA
537 (modified)	3535	Water	Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)
537 (modified)	3535	Water	Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)
537 (modified)	3535	Water	Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)

# Accreditation/Certification Summary

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

## 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)	3535	Water	Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)
537 (modified)	3535	Water	Perfluoro-2-methoxyacetic acid (PFMOAA)
537 (modified)	3535	Water	Perfluoro-3-methoxypropanoic acid (PFMPA)
537 (modified)	3535	Water	Perfluoro-4-methoxybutanoic acid (PFMBA)
537 (modified)	3535	Water	Perfluorobutanesulfonic acid (PFBS)
537 (modified)	3535	Water	Perfluorobutanoic acid (PFBA)
537 (modified)	3535	Water	Perfluorodecanesulfonic acid (PFDS)
537 (modified)	3535	Water	Perfluorodecanoic acid (PFDA)
537 (modified)	3535	Water	Perfluorododecanesulfonic acid (PFDoS)
537 (modified)	3535	Water	Perfluorododecanoic acid (PFDoA)
537 (modified)	3535	Water	Perfluoroheptanesulfonic acid (PFHpS)
537 (modified)	3535	Water	Perfluoroheptanoic acid (PFHpA)
537 (modified)	3535	Water	Perfluorohexanesulfonic acid (PFHxS)
537 (modified)	3535	Water	Perfluorohexanoic acid (PFHxA)
537 (modified)	3535	Water	Perfluoro-n-hexadecanoic acid (PFHxDA)
537 (modified)	3535	Water	Perfluoro-n-octadecanoic acid (PFODA)
537 (modified)	3535	Water	Perfluorononanesulfonic acid (PFNS)
537 (modified)	3535	Water	Perfluorononanoic acid (PFNA)
537 (modified)	3535	Water	Perfluorooctanesulfonamide (FOSA)
537 (modified)	3535	Water	Perfluorooctanesulfonic acid (PFOS)
537 (modified)	3535	Water	Perfluorooctanoic acid (PFOA)
537 (modified)	3535	Water	Perfluoropentanesulfonic acid (PFPeS)
537 (modified)	3535	Water	Perfluoropentanoic acid (PFPeA)
537 (modified)	3535	Water	Perfluorotetradecanoic acid (PFTeA)
537 (modified)	3535	Water	Perfluorotridecanoic acid (PFTrDA)
537 (modified)	3535	Water	Perfluoroundecanoic acid (PFUnA)
537 (modified)	3535	Water	PFECHS
537 (modified)	3535	Water	PFO5DA
537 (modified)	3535	Water	PFPE-1
537 (modified)	3535	Water	PFPrA
537 (modified)	3535	Water	PFPrS
537 (modified)	3535	Water	PMPA
537 (modified)	3535	Water	R-EVE
537 (modified)	3535	Water	R-PSDCA
537 (modified)	TOP Post-Prep	Solid	10:2 FTCA
537 (modified)	TOP Post-Prep	Solid	11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)
537 (modified)	TOP Post-Prep	Solid	1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)
537 (modified)	TOP Post-Prep	Solid	1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)
537 (modified)	TOP Post-Prep	Solid	1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)
537 (modified)	TOP Post-Prep	Solid	1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)

# Accreditation/Certification Summary

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

## 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 Post-Prep	Solid	3-Perfluoroheptylpropanoic acid (7:3 FTCA)
537 (modified)	TOP Post-Prep	Solid	3-Perfluoropentylpropanoic acid (5:3 FTCA)
537 (modified)	TOP Post-Prep	Solid	3-Perfluoropropylpropanoic acid (3:3 FTCA)
537 (modified)	TOP Post-Prep	Solid	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)
537 (modified)	TOP Post-Prep	Solid	6:2 FTCA
537 (modified)	TOP Post-Prep	Solid	8:2 FTCA
537 (modified)	TOP Post-Prep	Solid	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)
537 (modified)	TOP Post-Prep	Solid	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)
537 (modified)	TOP Post-Prep	Solid	Hydro-EVE Acid
537 (modified)	TOP Post-Prep	Solid	Hydro-PS Acid
537 (modified)	TOP Post-Prep	Solid	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)
537 (modified)	TOP Post-Prep	Solid	N-ethylperfluorooctane sulfonamide (NEtFOSA)
537 (modified)	TOP Post-Prep	Solid	N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)
537 (modified)	TOP Post-Prep	Solid	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)
537 (modified)	TOP Post-Prep	Solid	N-methylperfluorooctane sulfonamide (NMeFOSA)
537 (modified)	TOP Post-Prep	Solid	N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)
537 (modified)	TOP Post-Prep	Solid	Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)
537 (modified)	TOP Post-Prep	Solid	NVHOS
537 (modified)	TOP Post-Prep	Solid	PEPA
537 (modified)	TOP Post-Prep	Solid	Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)
537 (modified)	TOP Post-Prep	Solid	Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)
537 (modified)	TOP Post-Prep	Solid	Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)
537 (modified)	TOP Post-Prep	Solid	Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)
537 (modified)	TOP Post-Prep	Solid	Perfluoro-2-methoxyacetic acid (PFMOAA)
537 (modified)	TOP Post-Prep	Solid	Perfluoro-3-methoxypropanoic acid (PFMPA)
537 (modified)	TOP Post-Prep	Solid	Perfluoro-4-methoxybutanoic acid (PFMBA)
537 (modified)	TOP Post-Prep	Solid	Perfluorobutanesulfonic acid (PFBS)
537 (modified)	TOP Post-Prep	Solid	Perfluorobutanoic acid (PFBA)
537 (modified)	TOP Post-Prep	Solid	Perfluorodecanesulfonic acid (PFDS)
537 (modified)	TOP Post-Prep	Solid	Perfluorodecanoic acid (PFDA)
537 (modified)	TOP Post-Prep	Solid	Perfluorododecanesulfonic acid (PFDoS)

# Accreditation/Certification Summary

Client: Hawaii Department of Health  
 Project/Site: Background Study

Job ID: 320-105223-1

## 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 Post-Prep	Solid	Perfluorododecanoic acid (PFDoA)
537 (modified)	TOP Post-Prep	Solid	Perfluoroheptanesulfonic acid (PFHpS)
537 (modified)	TOP Post-Prep	Solid	Perfluoroheptanoic acid (PFHpA)
537 (modified)	TOP Post-Prep	Solid	Perfluorohexanesulfonic acid (PFHxS)
537 (modified)	TOP Post-Prep	Solid	Perfluorohexanoic acid (PFHxA)
537 (modified)	TOP Post-Prep	Solid	Perfluoro-n-hexadecanoic acid (PFHxDA)
537 (modified)	TOP Post-Prep	Solid	Perfluoro-n-octadecanoic acid (PFODA)
537 (modified)	TOP Post-Prep	Solid	Perfluorononanesulfonic acid (PFNS)
537 (modified)	TOP Post-Prep	Solid	Perfluorononanoic acid (PFNA)
537 (modified)	TOP Post-Prep	Solid	Perfluorooctanesulfonamide (FOSA)
537 (modified)	TOP Post-Prep	Solid	Perfluorooctanesulfonic acid (PFOS)
537 (modified)	TOP Post-Prep	Solid	Perfluorooctanoic acid (PFOA)
537 (modified)	TOP Post-Prep	Solid	Perfluoropentanesulfonic acid (PFPeS)
537 (modified)	TOP Post-Prep	Solid	Perfluoropentanoic acid (PFPeA)
537 (modified)	TOP Post-Prep	Solid	Perfluorotetradecanoic acid (PFTeA)
537 (modified)	TOP Post-Prep	Solid	Perfluorotridecanoic acid (PFTrDA)
537 (modified)	TOP Post-Prep	Solid	Perfluoroundecanoic acid (PFUnA)
537 (modified)	TOP Post-Prep	Solid	PFECHS
537 (modified)	TOP Post-Prep	Solid	PFO5DA
537 (modified)	TOP Post-Prep	Solid	PFPE-1
537 (modified)	TOP Post-Prep	Solid	PFPrS
537 (modified)	TOP Post-Prep	Solid	PMPA
537 (modified)	TOP Post-Prep	Solid	R-EVE
537 (modified)	TOP Post-Prep	Solid	R-PSDCA
537 (modified)	TOP Pre-Prep	Solid	10:2 FTCA
537 (modified)	TOP Pre-Prep	Solid	11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)
537 (modified)	TOP Pre-Prep	Solid	1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)
537 (modified)	TOP Pre-Prep	Solid	1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)
537 (modified)	TOP Pre-Prep	Solid	1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)
537 (modified)	TOP Pre-Prep	Solid	1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)
537 (modified)	TOP Pre-Prep	Solid	3-Perfluoroheptylpropanoic acid (7:3 FTCA)
537 (modified)	TOP Pre-Prep	Solid	3-Perfluoropentylpropanoic acid (5:3 FTCA)
537 (modified)	TOP Pre-Prep	Solid	3-Perfluoropropylpropanoic acid (3:3 FTCA)
537 (modified)	TOP Pre-Prep	Solid	4,8-Dioxa-3H-perfluorononanoic acid (ADONA)
537 (modified)	TOP Pre-Prep	Solid	6:2 FTCA
537 (modified)	TOP Pre-Prep	Solid	8:2 FTCA
537 (modified)	TOP Pre-Prep	Solid	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)
537 (modified)	TOP Pre-Prep	Solid	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)

# Accreditation/Certification Summary

Client: Hawaii Department of Health  
 Project/Site: Background Study

Job ID: 320-105223-1

## 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	Solid	Hydro-EVE Acid
537 (modified)	TOP Pre-Prep	Solid	Hydro-PS Acid
537 (modified)	TOP Pre-Prep	Solid	N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)
537 (modified)	TOP Pre-Prep	Solid	N-ethylperfluorooctane sulfonamide (NEtFOSA)
537 (modified)	TOP Pre-Prep	Solid	N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)
537 (modified)	TOP Pre-Prep	Solid	N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)
537 (modified)	TOP Pre-Prep	Solid	N-methylperfluorooctane sulfonamide (NMeFOSA)
537 (modified)	TOP Pre-Prep	Solid	N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)
537 (modified)	TOP Pre-Prep	Solid	Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)
537 (modified)	TOP Pre-Prep	Solid	NVHOS
537 (modified)	TOP Pre-Prep	Solid	PEPA
537 (modified)	TOP Pre-Prep	Solid	Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)
537 (modified)	TOP Pre-Prep	Solid	Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)
537 (modified)	TOP Pre-Prep	Solid	Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)
537 (modified)	TOP Pre-Prep	Solid	Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)
537 (modified)	TOP Pre-Prep	Solid	Perfluoro-2-methoxyacetic acid (PFMOAA)
537 (modified)	TOP Pre-Prep	Solid	Perfluoro-3-methoxypropanoic acid (PFMPA)
537 (modified)	TOP Pre-Prep	Solid	Perfluoro-4-methoxybutanoic acid (PFMBA)
537 (modified)	TOP Pre-Prep	Solid	Perfluorobutanesulfonic acid (PFBS)
537 (modified)	TOP Pre-Prep	Solid	Perfluorobutanoic acid (PFBA)
537 (modified)	TOP Pre-Prep	Solid	Perfluorodecanesulfonic acid (PFDS)
537 (modified)	TOP Pre-Prep	Solid	Perfluorodecanoic acid (PFDA)
537 (modified)	TOP Pre-Prep	Solid	Perfluorododecanesulfonic acid (PFDoS)
537 (modified)	TOP Pre-Prep	Solid	Perfluorododecanoic acid (PFDoA)
537 (modified)	TOP Pre-Prep	Solid	Perfluoroheptanesulfonic acid (PFHpS)
537 (modified)	TOP Pre-Prep	Solid	Perfluoroheptanoic acid (PFHpA)
537 (modified)	TOP Pre-Prep	Solid	Perfluorohexanesulfonic acid (PFHxS)
537 (modified)	TOP Pre-Prep	Solid	Perfluorohexanoic acid (PFHxA)
537 (modified)	TOP Pre-Prep	Solid	Perfluoro-n-hexadecanoic acid (PFHxDA)
537 (modified)	TOP Pre-Prep	Solid	Perfluoro-n-octadecanoic acid (PFODA)
537 (modified)	TOP Pre-Prep	Solid	Perfluorononanesulfonic acid (PFNS)
537 (modified)	TOP Pre-Prep	Solid	Perfluorononanoic acid (PFNA)
537 (modified)	TOP Pre-Prep	Solid	Perfluorooctanesulfonamide (FOSA)
537 (modified)	TOP Pre-Prep	Solid	Perfluorooctanesulfonic acid (PFOS)
537 (modified)	TOP Pre-Prep	Solid	Perfluorooctanoic acid (PFOA)
537 (modified)	TOP Pre-Prep	Solid	Perfluoropentanesulfonic acid (PFPeS)

# Accreditation/Certification Summary

Client: Hawaii Department of Health  
 Project/Site: Background Study

Job ID: 320-105223-1

## 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	Solid	Perfluoropentanoic acid (PFPeA)
537 (modified)	TOP Pre-Prep	Solid	Perfluorotetradecanoic acid (PFTeA)
537 (modified)	TOP Pre-Prep	Solid	Perfluorotridecanoic acid (PFTrDA)
537 (modified)	TOP Pre-Prep	Solid	Perfluoroundecanoic acid (PFUnA)
537 (modified)	TOP Pre-Prep	Solid	PFECHS
537 (modified)	TOP Pre-Prep	Solid	PFO5DA
537 (modified)	TOP Pre-Prep	Solid	PFPE-1
537 (modified)	TOP Pre-Prep	Solid	PFPrS
537 (modified)	TOP Pre-Prep	Solid	PMPA
537 (modified)	TOP Pre-Prep	Solid	R-EVE
537 (modified)	TOP Pre-Prep	Solid	R-PSDCA
CIC EOF	EOF Prep	Solid	Extractable Organic Fluorine (EOF)
Increment, Prep		Solid	Incremented sample generated
Total PFCA-Dif		Solid	PFBA
Total PFCA-Dif		Solid	PFHpA
Total PFCA-Dif		Solid	PFHxA
Total PFCA-Dif		Solid	PFNA
Total PFCA-Dif		Solid	PFOA
Total PFCA-Dif		Solid	PFPeA
Total PFCA-Dif		Solid	Total PFCA
Total PFCA-Sum		Solid	Total PFCA

# Method Summary

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	EET SAC
CIC EOF	Extractable Organic Fluorine by Combustion Ion Chromatography	Lab SOP	EET SAC
Total PFCA-Dif	Total PFCA (Treatment Difference)	TAL SOP	EET SAC
Total PFCA-Sum	Total PFCA (Summary)	TAL SOP	EET SAC
Increment, Prep	ISM - Custom ISM procedure	EPA	EET SAC
3535	Solid-Phase Extraction (SPE)	SW846	EET SAC
EOF Prep	Preparation, Extractable Organic Fluorine	Lab SOP	EET SAC
TOP Post-Prep	Shake Extraction with Ultrasonic Bath Extraction	SW846	EET SAC
TOP Pre-Prep	Shake Extraction with Ultrasonic Bath Extraction	SW846	EET SAC

#### Protocol References:

EPA = US Environmental Protection Agency

Lab SOP = Laboratory Standard Operating Procedure

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

# Sample Summary

Client: Hawaii Department of Health  
Project/Site: Background Study

Job ID: 320-105223-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-105223-1	KOKEE-BCKG	Solid	08/08/23 13:30	09/26/23 09:05
320-105223-2	ML#1-PFAS-BCKG	Solid	09/12/23 17:00	09/26/23 09:05
320-105223-3	KUD-PFAS-BCKG	Solid	09/12/23 18:45	09/26/23 09:05
320-105223-4	KALOLI POINT-BCKG	Solid	09/19/23 18:00	09/26/23 09:05
320-105223-5	POLI-PFAS-BCKG	Solid	09/20/23 08:00	09/26/23 09:05
320-105223-6	MAK-PFHI-BCKG	Solid	09/21/23 08:30	09/26/23 09:05
320-105223-7	MP-BCKG	Solid	09/24/23 08:30	09/26/23 09:05
320-105223-8	NPALI-BCKG	Solid	09/24/23 09:30	09/26/23 09:05
320-105223-9	KP-BCKG	Solid	09/24/23 12:30	09/26/23 09:05
320-105223-10	SOURCE BLANK	Water	09/25/23 12:00	09/26/23 09:05
320-105223-11	EQUIPMENT BLANK	Water	09/25/23 12:15	09/26/23 09:05

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West Sacramento, CA 95605-1500  
phone 916.373.5600 fax 303.467.7248

TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica

Regulatory Program:  DW  NPDES  RCRA  Other:

Project Manager: Roger Brewer  
 Email: roger.brewer@doh.hawaii.gov  
 Tel/Fax: (808) 737-4050  
 Date: 9/25/23  
 Carrier: FedEx  
 COC No.: 1 of 1 COCs

Client Contact  
 Element Environmental  
 Address 98-030 Hekaha St. Unit 9  
 City/State/Zip Area, HI 96701  
 (808) 448-1200 Phone  
 (808) 448-1300 FAX  
 Project Name: Background PFAS Study  
 Site:  
 P O # 230057

Analysis Turnaround Time  
 CALENDAR DAYS  WORKING DAYS  
 TAT if different from Below \_\_\_\_\_  
 2 weeks  
 1 week  
 2 days  
 1 day

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	PFAS TOP 1633	EOF MLA-119	PFAS 1633	MIS sampling	Sample Specific Notes:
KOKEE-BCKG	8/8/2023	13:30	C	SL	1			X	X	X	X	PFAS Non-Target Analysis (NTA) on selected samples. Please provide Prelim Data on TOPs to decide on which samples to run NTA
ML#1-PFAS-BCKG	9/12/2023	17:00	C	SL	1			X	X	X	X	
KUD-PFAS-BCKG	9/12/2023	18:45	C	SL	1			X	X	X	X	
KALOLI POINT-BCKG	9/19/2023	18:00	C	SL	1			X	X	X	X	
POLI-PFAS-BCKG	9/20/2023	08:00	C	SL	1			X	X	X	X	
MAK-PFHI-BCKG	9/21/2023	08:30	C	SL	1			X	X	X	X	
MP-BCKG	9/24/2023	08:30	C	SL	1			X	X	X	X	
NPALI-BCKG	9/24/2023	09:30	C	SL	1			X	X	X	X	
KP-BCKG	9/24/2023	12:30	C	SL	1			X	X	X	X	
SOURCE BLANK	9/25/2023	12:00	G	AQ	2							
EQUIPMENT BLANK	9/25/2023	12:15	G	AQ	2							



Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other  
 Possible Hazard Identification: \_\_\_\_\_  
 Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.  
 Non-Hazard  Flammable  Skin Irritant  Poison B  Unknown  
 Special Instructions/QC Requirements & Comments: please report Element Environmental A1, A3 EDD

Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)  
 Return to Client  Disposal by Lab  Archive for \_\_\_\_\_ Months

Custody Seal No.: 2113632 / 2113633  
 Company: Element Environmental  
 Date/Time: 9/25/23 4:40  
 Relinquished by: MDR  
 Relinquished by: \_\_\_\_\_  
 Relinquished by: \_\_\_\_\_

Received by: [Signature]  
 Date/Time: 9/26/23 09:05  
 Company: [Signature]  
 Received in Laboratory by: \_\_\_\_\_  
 Date/Time: \_\_\_\_\_

Therm ID No.: 602  
 Corrd: 2.7  
 Obsd: 2.7  
 Coder Temp. (°C): 2.7





## Login Sample Receipt Checklist

Client: Hawaii Department of Health

Job Number: 320-105223-1

**Login Number: 105223**

**List Source: Eurofins Sacramento**

**List Number: 1**

**Creator: Medeiros, Ryan M**

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	

