



ANALYTICAL REPORT

PREPARED FOR

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JOB DESCRIPTION

DOH Maui Wildfire Ash Sample - LAHAINA ASH DU-1

JOB NUMBER

320-107200-1

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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: DOH Maui Wildfire Ash Sample - LAHAINA ASH
 DU-1

Job ID: 320-107200-1

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.

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: DOH Maui Wildfire Ash Sample - LAHAINA ASH DU-1

Job ID: 320-107200-1

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Receipt

The sample was received on 11/16/2023 9:15 AM. Unless otherwise noted below, the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 12.4° C.

Receipt Exceptions

No collection times were listed on the sample containers.

The following sample was received at the laboratory outside the required temperature criteria: LAHAINA ASH DU-1 (320-107200-1). Samples were received out of temp at 12.4C.

The sample was received in glass containers.

LCMS

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 PFCAs are 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 RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) aliquots for preparation batches 320-722692 and 320-722691 recovered outside control limits for one or more of the following analytes: Perfluorododecanoic acid (PFDoA), Perfluorotridecanoic acid (PFTrDA) and Perfluorododecanesulfonic acid (PFDoS).

Method 537 (modified): Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for the following samples: (CCB 320-726774/4), (CCVIS 320-726774/6), (MB 320-7226921/1-A), (LCS 320-722691/2-A), (LCS 320-722692/2-A), (LCSD 320-722691/3-A) and (LCSD 320-722692/3-A). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Method 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following samples are below the method recommended limit: LAHAINA ASH DU-1 (320-107200-1) and (LCSD 320-722691/3-A). 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): The continuing calibration verification (CCV) associated with batch 320-726115 recovered above the upper control limit for Perfluorodecanesulfonic acid (PFDS). The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) recoveries are in control; therefore, the data have been reported. (CCV 320-726115/1) and (CCV 320-726115/10)

Method 537 (modified): The continuing calibration verification (CCV) associated with batch 320-726115 recovered above the upper control limit for isotope dilution analyte (IDA) d9-N-EtFOSE-M. The associated target analyte, N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE), was within control limits in the CCV; therefore, the data is reported: (CCV 320-726115/1).

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

Organic Prep

Method TOP Post-Prep/Pre-Prep: A deviation from the Standard Operating Procedure (SOP) occurred. Details are as follows: the sample was extracted initially using a 5 g sample mass to meet client requirements for sample preparation mass. The resulting extract was then split to yield the same sample equivalent mass as is specified in the laboratory's SOP for Pre- and Post-TOP solid sample aliquots.

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

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Detection Summary

Client: Hawaii Department of Health
 Project/Site: DOH Maui Wildfire Ash Sample - LAHAINA ASH
 DU-1

Job ID: 320-107200-1

Client Sample ID: LAHAINA ASH DU-1

Lab Sample ID: 320-107200-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	1.0	*+	0.94		ug/Kg	1		537 (modified)	Post-Treatment
PFBA	1.0				ug/Kg	1		Total PFCA-Dif	Total/NA
PFPA	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	1.0				ug/Kg	1		Total PFCA-Dif	Total/NA
Total PFCA	0.00				ug/Kg	1		Total PFCA-Sum	Pre-Treatment
Total PFCA	1.0				ug/Kg	1		Total PFCA-Sum	Post-Treatment

This Detection Summary does not include radiochemical test results.



Client Sample Results

Client: Hawaii Department of Health
 Project/Site: DOH Maui Wildfire Ash Sample - LAHAINA ASH
 DU-1

Job ID: 320-107200-1

Client Sample ID: LAHAINA ASH DU-1

Lab Sample ID: 320-107200-1

Date Collected: 11/08/23 11:00

Matrix: Solid

Date Received: 11/16/23 09:15

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
Perfluoropentanoic acid (PFPeA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
Perfluorohexanoic acid (PFHxA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
Perfluoroheptanoic acid (PFHpA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
Perfluorooctanoic acid (PFOA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
Perfluorononanoic acid (PFNA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
Perfluorodecanoic acid (PFDA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
Perfluoroundecanoic acid (PFUnA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
Perfluorododecanoic acid (PFDoA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
Perfluorotridecanoic acid (PFTTrDA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
Perfluoro-n-octadecanoic acid (PFODA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
Perfluorononanesulfonic acid (PFNS)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
Perfluorododecanesulfonic acid (PFDoS)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
Perfluorooctanesulfonamide (FOSA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid (9Cl-PF3ONS)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1

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Client Sample Results

Client: Hawaii Department of Health
 Project/Site: DOH Maui Wildfire Ash Sample - LAHAINA ASH
 DU-1

Job ID: 320-107200-1

Client Sample ID: LAHAINA ASH DU-1

Lab Sample ID: 320-107200-1

Date Collected: 11/08/23 11:00

Matrix: Solid

Date Received: 11/16/23 09:15

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
11-Chloroeicosfluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
PFECHS	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
PFPPrS	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
6:2 FTUCA	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 14:12	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	83		25 - 150	11/22/23 19:22	12/11/23 14:12	1
13C4 PFBA	19	*5-	25 - 150	11/22/23 19:22	12/11/23 14:12	1
13C5 PFPeA	85		25 - 150	11/22/23 19:22	12/11/23 14:12	1
13C2 PFHxA	101		25 - 150	11/22/23 19:22	12/11/23 14:12	1
13C4 PFHpA	112		25 - 150	11/22/23 19:22	12/11/23 14:12	1
13C4 PFOA	102		25 - 150	11/22/23 19:22	12/11/23 14:12	1
13C5 PFNA	105		25 - 150	11/22/23 19:22	12/11/23 14:12	1
13C2 PFDA	97		25 - 150	11/22/23 19:22	12/11/23 14:12	1
13C2 PFUnA	92		25 - 150	11/22/23 19:22	12/11/23 14:12	1
13C2 PFDoA	84		25 - 150	11/22/23 19:22	12/11/23 14:12	1
13C2 PFTeDA	80		25 - 150	11/22/23 19:22	12/11/23 14:12	1
13C2 PFHxDA	104		25 - 150	11/22/23 19:22	12/11/23 14:12	1
13C3 PFBS	90		25 - 150	11/22/23 19:22	12/11/23 14:12	1
18O2 PFHxS	94		25 - 150	11/22/23 19:22	12/11/23 14:12	1
13C4 PFOS	89		25 - 150	11/22/23 19:22	12/11/23 14:12	1
d5-NEtFOSAA	86		25 - 150	11/22/23 19:22	12/11/23 14:12	1
d3-NMeFOSAA	86		25 - 150	11/22/23 19:22	12/11/23 14:12	1
M2-4:2 FTS	88		25 - 150	11/22/23 19:22	12/11/23 14:12	1
M2-6:2 FTS	118		25 - 150	11/22/23 19:22	12/11/23 14:12	1
M2-8:2 FTS	103		25 - 150	11/22/23 19:22	12/11/23 14:12	1
d-N-MeFOSA-M	70		25 - 150	11/22/23 19:22	12/11/23 14:12	1
d-N-EtFOSA-M	87		25 - 150	11/22/23 19:22	12/11/23 14:12	1
d7-N-MeFOSE-M	75		25 - 150	11/22/23 19:22	12/11/23 14:12	1
d9-N-EtFOSE-M	81		25 - 150	11/22/23 19:22	12/11/23 14:12	1
13C3 HFPO-DA	93		25 - 150	11/22/23 19:22	12/11/23 14:12	1
13C-6:2 FTCA	105		25 - 150	11/22/23 19:22	12/11/23 14:12	1
13C-8:2 FTCA	109		25 - 150	11/22/23 19:22	12/11/23 14:12	1
13C2 10:2 FTS	93		25 - 150	11/22/23 19:22	12/11/23 14:12	1

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Client Sample Results

Client: Hawaii Department of Health
 Project/Site: DOH Maui Wildfire Ash Sample - LAHAINA ASH
 DU-1

Job ID: 320-107200-1

Client Sample ID: LAHAINA ASH DU-1

Lab Sample ID: 320-107200-1

Date Collected: 11/08/23 11:00

Matrix: Solid

Date Received: 11/16/23 09:15

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C-6:2 FTUCA	99		25 - 150	11/22/23 19:22	12/11/23 14:12	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	1.0	*+	0.94		ug/Kg		11/22/23 19:22	12/11/23 13:16	1
Perfluoropentanoic acid (PFPeA)	ND	*+	0.94		ug/Kg		11/22/23 19:22	12/11/23 13:16	1
Perfluorohexanoic acid (PFHxA)	ND	*+	0.94		ug/Kg		11/22/23 19:22	12/11/23 13:16	1
Perfluoroheptanoic acid (PFHpA)	ND	*+	0.94		ug/Kg		11/22/23 19:22	12/11/23 13:16	1
Perfluorooctanoic acid (PFOA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 13:16	1
Perfluorononanoic acid (PFNA)	ND	*+	0.94		ug/Kg		11/22/23 19:22	12/11/23 13:16	1
Perfluorodecanoic acid (PFDA)	ND	*+	0.94		ug/Kg		11/22/23 19:22	12/11/23 13:16	1
Perfluoroundecanoic acid (PFUnA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 13:16	1
Perfluorododecanoic acid (PFDoA)	ND	*+ *1	0.94		ug/Kg		11/22/23 19:22	12/11/23 13:16	1
Perfluorotridecanoic acid (PFTTrDA)	ND	*1	0.94		ug/Kg		11/22/23 19:22	12/11/23 13:16	1
Perfluorotetradecanoic acid (PFTeA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 13:16	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 13:16	1
Perfluoropentanesulfonic acid (PFPeS)	ND	*+	0.94		ug/Kg		11/22/23 19:22	12/11/23 13:16	1
Perfluorohexanesulfonic acid (PFHxS)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 13:16	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 13:16	1
Perfluorooctanesulfonic acid (PFOS)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 13:16	1
Perfluorononanesulfonic acid (PFNS)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 13:16	1
Perfluorodecanesulfonic acid (PFDS)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 13:16	1
Perfluorododecanesulfonic acid (PFDoS)	ND	*1	0.94		ug/Kg		11/22/23 19:22	12/11/23 13:16	1
Perfluorooctanesulfonamide (FOSA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 13:16	1
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 13:16	1
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 13:16	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 13:16	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 13:16	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 13:16	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 13:16	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 13:16	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 13:16	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 13:16	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid (9CI-PF3ONS)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 13:16	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 13:16	1
11-Chloroeicosafluoro-3-oxaundecan e-1-sulfonic acid (11CI-PF3OUdS)	ND	*-	0.94		ug/Kg		11/22/23 19:22	12/11/23 13:16	1

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Client Sample Results

Client: Hawaii Department of Health
 Project/Site: DOH Maui Wildfire Ash Sample - LAHAINA ASH
 DU-1

Job ID: 320-107200-1

Client Sample ID: LAHAINA ASH DU-1

Lab Sample ID: 320-107200-1

Date Collected: 11/08/23 11:00

Matrix: Solid

Date Received: 11/16/23 09:15

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 13:16	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 13:16	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 13:16	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 13:16	1
6:2 FTUCA	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 13:16	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 13:16	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 13:16	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 13:16	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEEASA)	ND		0.94		ug/Kg		11/22/23 19:22	12/11/23 13:16	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 FOSA	94		25 - 150	11/22/23 19:22	12/11/23 13:16	1
13C4 PFBA	108		25 - 150	11/22/23 19:22	12/11/23 13:16	1
13C5 PFPeA	103		25 - 150	11/22/23 19:22	12/11/23 13:16	1
13C2 PFHxA	104		25 - 150	11/22/23 19:22	12/11/23 13:16	1
13C4 PFHpA	125		25 - 150	11/22/23 19:22	12/11/23 13:16	1
13C4 PFOA	109		25 - 150	11/22/23 19:22	12/11/23 13:16	1
13C5 PFNA	119		25 - 150	11/22/23 19:22	12/11/23 13:16	1
13C2 PFDA	89		25 - 150	11/22/23 19:22	12/11/23 13:16	1
13C2 PFUnA	78		25 - 150	11/22/23 19:22	12/11/23 13:16	1
13C2 PFDoA	110		25 - 150	11/22/23 19:22	12/11/23 13:16	1
13C2 PFTeDA	117		25 - 150	11/22/23 19:22	12/11/23 13:16	1
13C2 PFHxDA	121		25 - 150	11/22/23 19:22	12/11/23 13:16	1
13C3 PFBS	104		25 - 150	11/22/23 19:22	12/11/23 13:16	1
18O2 PFHxS	105		25 - 150	11/22/23 19:22	12/11/23 13:16	1
13C4 PFOS	97		25 - 150	11/22/23 19:22	12/11/23 13:16	1
d5-NEtFOSAA	94		25 - 150	11/22/23 19:22	12/11/23 13:16	1
d3-NMeFOSAA	100		25 - 150	11/22/23 19:22	12/11/23 13:16	1
M2-4:2 FTS	0		0 - 10	11/22/23 19:22	12/11/23 13:16	1
M2-6:2 FTS	126		25 - 150	11/22/23 19:22	12/11/23 13:16	1
M2-8:2 FTS	130		25 - 150	11/22/23 19:22	12/11/23 13:16	1
d-N-MeFOSA-M	67		25 - 150	11/22/23 19:22	12/11/23 13:16	1
d-N-EtFOSA-M	82		25 - 150	11/22/23 19:22	12/11/23 13:16	1
d7-N-MeFOSE-M	91		25 - 150	11/22/23 19:22	12/11/23 13:16	1
d9-N-EtFOSE-M	96		25 - 150	11/22/23 19:22	12/11/23 13:16	1
13C3 HFPO-DA	106		25 - 150	11/22/23 19:22	12/11/23 13:16	1
13C-6:2 FTCA	108		25 - 150	11/22/23 19:22	12/11/23 13:16	1
13C-8:2 FTCA	107		25 - 150	11/22/23 19:22	12/11/23 13:16	1
13C2 10:2 FTS	119		25 - 150	11/22/23 19:22	12/11/23 13:16	1
13C-6:2 FTUCA	107		25 - 150	11/22/23 19:22	12/11/23 13:16	1

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Client Sample Results

Client: Hawaii Department of Health
 Project/Site: DOH Maui Wildfire Ash Sample - LAHAINA ASH
 DU-1

Job ID: 320-107200-1

Client Sample ID: LAHAINA ASH DU-1

Lab Sample ID: 320-107200-1

Date Collected: 11/08/23 11:00

Matrix: Solid

Date Received: 11/16/23 09:15

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

Analyte	Result	Qualifier	NONE	NONE	Unit	D	Prepared	Analyzed	Dil Fac
PFBA	1.0				ug/Kg			01/26/24 17:38	1
PFPA	0.00				ug/Kg			01/26/24 17:38	1
PFHxA	0.00				ug/Kg			01/26/24 17:38	1
PFHpA	0.00				ug/Kg			01/26/24 17:38	1
PFOA	0.00				ug/Kg			01/26/24 17:38	1
PFNA	0.00				ug/Kg			01/26/24 17:38	1
Total PFCA	1.0				ug/Kg			01/26/24 17:38	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			12/11/23 14:12	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	1.0				ug/Kg			12/11/23 13:16	1

Total Oxidation Precursors

Client: Hawaii Department of Health
 Project/Site: DOH Maui Wildfire Ash Sample - LAHAINA ASH
 DU-1

TestAmerica Job ID: 320-107200-1

Client Sample ID: LAHAINA ASH DU-1

Lab Sample ID: 320-107200-1
Matrix: Solid

Analyte	Pre-Treatment Method			Post-Treatment Method			Difference ¹	
	537 (modified)			537 (modified)			Result	Unit
	Result	Qualifier	Unit	Result	Qualifier	Unit		
Perfluorobutanoic acid (PFBA)	ND		ug/Kg	1.0		ug/Kg	1.0	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	1.0		ug/Kg	1.0	ug/Kg

¹ Difference = Post-Treatment - Pre-Treatment

Isotope Dilution Summary

Client: Hawaii Department of Health

Job ID: 320-107200-1

Project/Site: DOH Maui Wildfire Ash Sample - LAHAINA ASH

DU-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Solid

Prep Type: Pre-Treatment

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFOSA (25-150)	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)
320-107200-1	LAHAINA ASH DU-1	83	19 *5-	85	101	112	102	105	97
LCS 320-722692/2-A	Lab Control Sample	99	88	96	107	109	105	107	114
LCSD 320-722692/3-A	Lab Control Sample Dup	104	88	96	103	113	103	110	111
MB 320-722692/1-A	Method Blank	93	99	97	101	115	106	109	107

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFUnA (25-150)	PFDoA (25-150)	PFTDA (25-150)	PFHxDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	d5NEFOS (25-150)
320-107200-1	LAHAINA ASH DU-1	92	84	80	104	90	94	89	86
LCS 320-722692/2-A	Lab Control Sample	132	138	130	137	101	122	113	140
LCSD 320-722692/3-A	Lab Control Sample Dup	143	137	95	113	100	118	116	137
MB 320-722692/1-A	Method Blank	126	126	81	90	95	102	100	126

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	d3NMFOS (25-150)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)	dMeFOSA (25-150)	dEtFOSA (25-150)	NMFM (25-150)	NEFM (25-150)
320-107200-1	LAHAINA ASH DU-1	86	88	118	103	70	87	75	81
LCS 320-722692/2-A	Lab Control Sample	128	139	150	178 *5+	105	109	135	152 *5+
LCSD 320-722692/3-A	Lab Control Sample Dup	132	134	157 *5+	171 *5+	95	107	126	130
MB 320-722692/1-A	Method Blank	110	116	123	125	86	94	103	106

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HFPODA (25-150)	MFHEA (25-150)	MFOEA (25-150)	M102FTS (25-150)	MFHUEA (25-150)
320-107200-1	LAHAINA ASH DU-1	93	105	109	93	99
LCS 320-722692/2-A	Lab Control Sample	82	107	98	181 *5+	94
LCSD 320-722692/3-A	Lab Control Sample Dup	83	104	91	182 *5+	98
MB 320-722692/1-A	Method Blank	102	104	108	161 *5+	104

Surrogate Legend

- PFOSA = 13C8 FOSA
- PFBA = 13C4 PFBA
- PFPeA = 13C5 PFPeA
- PFHxA = 13C2 PFHxA
- C4PFHA = 13C4 PFHpA
- PFOA = 13C4 PFOA
- PFNA = 13C5 PFNA
- PFDA = 13C2 PFDA
- PFUnA = 13C2 PFUnA
- PFDoA = 13C2 PFDoA
- PFTDA = 13C2 PFTeDA
- PFHxDA = 13C2 PFHxDA
- C3PFBS = 13C3 PFBS
- PFHxS = 18O2 PFHxS
- PFOS = 13C4 PFOS
- d5NEFOS = d5-NEtFOSAA
- d3NMFOS = d3-NMeFOSAA
- M242FTS = M2-4:2 FTS
- M262FTS = M2-6:2 FTS
- M282FTS = M2-8:2 FTS
- dMeFOSA = d-N-MeFOSA-M

Isotope Dilution Summary

Client: Hawaii Department of Health

Job ID: 320-107200-1

Project/Site: DOH Maui Wildfire Ash Sample - LAHAINA ASH

DU-1

dEtFOSA = d-N-EtFOSA-M
 NMFM = d7-N-MeFOSE-M
 NEFM = d9-N-EtFOSE-M
 HFPODA = 13C3 HFPO-DA
 MFHEA = 13C-6:2 FTCA
 MFOEA = 13C-8:2 FTCA
 M102FTS = 13C2 10:2 FTS
 MFHUEA = 13C-6:2 FTUCA

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Solid

Prep Type: Post-Treatment

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFOSA (25-150)	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)
320-107200-1	LAHAINA ASH DU-1	94	108	103	104	125	109	119	89
LCS 320-722691/2-A	Lab Control Sample	102	91	101	111	112	100	105	106
LCS D 320-722691/3-A	Lab Control Sample Dup	110	86	92	101	106	101	107	113
MB 320-722691/1-A	Method Blank	101	99	101	102	115	106	117	108

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PfUnA (25-150)	PfDoA (25-150)	PFTDA (25-150)	PfHxDA (25-150)	C3PFBS (25-150)	PfHxS (25-150)	PFOS (25-150)	d5NEFOS (25-150)
320-107200-1	LAHAINA ASH DU-1	78	110	117	121	104	105	97	94
LCS 320-722691/2-A	Lab Control Sample	135	130	115	188 *5+	105	118	119	131
LCS D 320-722691/3-A	Lab Control Sample Dup	126	79	111	154 *5+	98	117	114	118
MB 320-722691/1-A	Method Blank	114	100	79	99	104	106	108	125

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	d3NMFOS (25-150)	M242FTS (0-10)	M262FTS (25-150)	M282FTS (25-150)	dMeFOSA (25-150)	dEtFOSA (25-150)	NMFM (25-150)	NEFM (25-150)
320-107200-1	LAHAINA ASH DU-1	100	0	126	130	67	82	91	96
LCS 320-722691/2-A	Lab Control Sample	118	0	133	154 *5+	97	113	125	144
LCS D 320-722691/3-A	Lab Control Sample Dup	123	0	145	163 *5+	92	67	125	94
MB 320-722691/1-A	Method Blank	112	0	115	132	76	88	98	74

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	HFPODA (25-150)	MFHEA (25-150)	MFOEA (25-150)	M102FTS (25-150)	MFHUEA (25-150)
320-107200-1	LAHAINA ASH DU-1	106	108	107	119	107
LCS 320-722691/2-A	Lab Control Sample	94	98	91	179 *5+	89
LCS D 320-722691/3-A	Lab Control Sample Dup	90	106	89	150	93
MB 320-722691/1-A	Method Blank	99	105	118	116	105

Surrogate Legend

PFOSA = 13C8 FOSA
 PFBA = 13C4 PFBA
 PFPeA = 13C5 PFPeA
 PFHxA = 13C2 PFHxA
 C4PFHA = 13C4 PFHpA
 PFOA = 13C4 PFOA
 PFNA = 13C5 PFNA
 PFDA = 13C2 PFDA
 PFUnA = 13C2 PFUnA
 PFDoA = 13C2 PFDoA
 PFTDA = 13C2 PFTeDA
 PFHxDA = 13C2 PFHxDA
 C3PFBS = 13C3 PFBS

Isotope Dilution Summary

Client: Hawaii Department of Health

Job ID: 320-107200-1

Project/Site: DOH Maui Wildfire Ash Sample - LAHAINAASH

DU-1

PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
d5NEFOS = d5-NEtFOSAA
d3NMFOS = d3-NMeFOSAA
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
dMeFOSA = d-N-MeFOSA-M
dEtFOSA = d-N-EtFOSA-M
NMFm = d7-N-MeFOSE-M
NEFM = d9-N-EtFOSE-M
HFPODA = 13C3 HFPO-DA
MFHEA = 13C-6:2 FTCA
MFOEA = 13C-8:2 FTCA
M102FTS = 13C2 10:2 FTS
MFHUEA = 13C-6:2 FTUCA

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QC Sample Results

Client: Hawaii Department of Health
 Project/Site: DOH Maui Wildfire Ash Sample - LAHAINAASH
 DU-1

Job ID: 320-107200-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-722692/1-A
Matrix: Solid
Analysis Batch: 726774

Client Sample ID: Method Blank
Prep Type: Pre-Treatment
Prep Batch: 722692

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorobutanoic acid (PFBA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
Perfluoropentanoic acid (PFPeA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
Perfluorohexanoic acid (PFHxA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
Perfluoroheptanoic acid (PFHpA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
Perfluorooctanoic acid (PFOA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
Perfluorononanoic acid (PFNA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
Perfluorodecanoic acid (PFDA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
Perfluoroundecanoic acid (PFUnA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
Perfluorododecanoic acid (PFDoA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
Perfluorotridecanoic acid (PFTTrDA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
Perfluoro-n-hexadecanoic acid (PFHxDA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
Perfluoro-n-octadecanoic acid (PFODA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
Perfluorononanesulfonic acid (PFNS)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
Perfluorododecanesulfonic acid (PFDoS)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
Perfluorooctanesulfonamide (FOSA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
N-ethylperfluorooctane sulfonamide (NEtFOSA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
N-methylperfluorooctane sulfonamide (NMeFOSA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid (9Cl-PF3ONS)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1

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QC Sample Results

Client: Hawaii Department of Health
 Project/Site: DOH Maui Wildfire Ash Sample - LAHAINAASH
 DU-1

Job ID: 320-107200-1

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

Lab Sample ID: MB 320-722692/1-A

Matrix: Solid

Analysis Batch: 726774

Client Sample ID: Method Blank

Prep Type: Pre-Treatment

Prep Batch: 722692

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
11-Chloroeicosfluoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
3-Perfluoropropylpropanoic acid (3:3 FTCA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
3-Perfluoropentylpropanoic acid (5:3 FTCA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
PFECHS	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
PFPrS	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
6:2 FTUCA	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 13:38	1

Isotope Dilution	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C8 FOSA	93		25 - 150	11/22/23 19:22	12/11/23 13:38	1
13C4 PFBA	99		25 - 150	11/22/23 19:22	12/11/23 13:38	1
13C5 PFPeA	97		25 - 150	11/22/23 19:22	12/11/23 13:38	1
13C2 PFHxA	101		25 - 150	11/22/23 19:22	12/11/23 13:38	1
13C4 PFHpA	115		25 - 150	11/22/23 19:22	12/11/23 13:38	1
13C4 PFOA	106		25 - 150	11/22/23 19:22	12/11/23 13:38	1
13C5 PFNA	109		25 - 150	11/22/23 19:22	12/11/23 13:38	1
13C2 PFDA	107		25 - 150	11/22/23 19:22	12/11/23 13:38	1
13C2 PFUnA	126		25 - 150	11/22/23 19:22	12/11/23 13:38	1
13C2 PFDoA	126		25 - 150	11/22/23 19:22	12/11/23 13:38	1
13C2 PFTeDA	81		25 - 150	11/22/23 19:22	12/11/23 13:38	1
13C2 PFHxDA	90		25 - 150	11/22/23 19:22	12/11/23 13:38	1
13C3 PFBS	95		25 - 150	11/22/23 19:22	12/11/23 13:38	1
18O2 PFHxS	102		25 - 150	11/22/23 19:22	12/11/23 13:38	1
13C4 PFOS	100		25 - 150	11/22/23 19:22	12/11/23 13:38	1
d5-NEtFOSAA	126		25 - 150	11/22/23 19:22	12/11/23 13:38	1
d3-NMeFOSAA	110		25 - 150	11/22/23 19:22	12/11/23 13:38	1
M2-4:2 FTS	116		25 - 150	11/22/23 19:22	12/11/23 13:38	1
M2-6:2 FTS	123		25 - 150	11/22/23 19:22	12/11/23 13:38	1
M2-8:2 FTS	125		25 - 150	11/22/23 19:22	12/11/23 13:38	1
d-N-MeFOSA-M	86		25 - 150	11/22/23 19:22	12/11/23 13:38	1
d-N-EtFOSA-M	94		25 - 150	11/22/23 19:22	12/11/23 13:38	1
d7-N-MeFOSE-M	103		25 - 150	11/22/23 19:22	12/11/23 13:38	1
d9-N-EtFOSE-M	106		25 - 150	11/22/23 19:22	12/11/23 13:38	1
13C3 HFPO-DA	102		25 - 150	11/22/23 19:22	12/11/23 13:38	1

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QC Sample Results

Client: Hawaii Department of Health
 Project/Site: DOH Maui Wildfire Ash Sample - LAHAINAASH
 DU-1

Job ID: 320-107200-1

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

Lab Sample ID: MB 320-722692/1-A

Matrix: Solid

Analysis Batch: 726774

Client Sample ID: Method Blank

Prep Type: Pre-Treatment

Prep Batch: 722692

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C-6:2 FTCA	104		25 - 150	11/22/23 19:22	12/11/23 13:38	1
13C-8:2 FTCA	108		25 - 150	11/22/23 19:22	12/11/23 13:38	1
13C2 10:2 FTS	161	*5+	25 - 150	11/22/23 19:22	12/11/23 13:38	1
13C-6:2 FTUCA	104		25 - 150	11/22/23 19:22	12/11/23 13:38	1

Lab Sample ID: LCS 320-722692/2-A

Matrix: Solid

Analysis Batch: 726115

Client Sample ID: Lab Control Sample

Prep Type: Pre-Treatment

Prep Batch: 722692

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec
							Limits
Perfluorobutanoic acid (PFBA)	10.0	9.39		ug/Kg		94	76 - 136
Perfluoropentanoic acid (PFPeA)	10.0	9.63		ug/Kg		96	69 - 129
Perfluorohexanoic acid (PFHxA)	10.0	9.39		ug/Kg		94	71 - 131
Perfluoroheptanoic acid (PFHpA)	10.0	9.20		ug/Kg		92	71 - 131
Perfluorooctanoic acid (PFOA)	10.0	9.20		ug/Kg		92	72 - 132
Perfluorononanoic acid (PFNA)	10.0	9.37		ug/Kg		94	73 - 133
Perfluorodecanoic acid (PFDA)	10.0	8.93		ug/Kg		89	72 - 132
Perfluoroundecanoic acid (PFUnA)	10.0	10.7		ug/Kg		107	66 - 126
Perfluorododecanoic acid (PFDoA)	10.0	8.93		ug/Kg		89	71 - 131
Perfluorotridecanoic acid (PFTrDA)	10.0	8.21		ug/Kg		82	71 - 131
Perfluorotetradecanoic acid (PFTeA)	10.0	9.22		ug/Kg		92	67 - 127
Perfluoro-n-hexadecanoic acid (PFHxDA)	10.0	9.78		ug/Kg		98	75 - 135
Perfluoro-n-octadecanoic acid (PFODA)	10.0	8.52		ug/Kg		85	53 - 130
Perfluorobutanesulfonic acid (PFBS)	8.88	8.98		ug/Kg		101	69 - 129
Perfluoropentanesulfonic acid (PFPeS)	9.40	10.6		ug/Kg		113	66 - 126
Perfluorohexanesulfonic acid (PFHxS)	9.12	8.04		ug/Kg		88	62 - 122
Perfluoroheptanesulfonic acid (PFHpS)	9.54	9.20		ug/Kg		96	76 - 136
Perfluorooctanesulfonic acid (PFOS)	9.30	9.16		ug/Kg		99	68 - 141
Perfluorononanesulfonic acid (PFNS)	9.60	9.59		ug/Kg		100	72 - 132
Perfluorodecanesulfonic acid (PFDS)	9.64	12.5		ug/Kg		130	71 - 131
Perfluorododecanesulfonic acid (PFDoS)	9.70	12.2		ug/Kg		126	70 - 130
Perfluorooctanesulfonamide (FOSA)	10.0	9.38		ug/Kg		94	77 - 137
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	10.0	9.21		ug/Kg		92	72 - 132

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QC Sample Results

Client: Hawaii Department of Health
 Project/Site: DOH Maui Wildfire Ash Sample - LAHAINAASH
 DU-1

Job ID: 320-107200-1

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

Lab Sample ID: LCS 320-722692/2-A

Matrix: Solid

Analysis Batch: 726115

Client Sample ID: Lab Control Sample

Prep Type: Pre-Treatment

Prep Batch: 722692

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
N-Ethylperfluorooctanesulfonamidoacetate acid (NETFOSAA)	10.0	9.69		ug/Kg		97	72 - 132
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	9.38	12.5		ug/Kg		133	68 - 143
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	9.52	8.75		ug/Kg		92	73 - 139
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	9.60	9.04		ug/Kg		94	75 - 135
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	9.66	9.19		ug/Kg		95	69 - 145
N-ethylperfluorooctane sulfonamide (NETFOSA)	10.0	8.61		ug/Kg		86	47 - 161
N-methylperfluorooctane sulfonamide (NMeFOSA)	10.0	8.46		ug/Kg		85	63 - 148
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	10.0	8.50		ug/Kg		85	43 - 153
N-ethylperfluorooctane sulfonamidoethanol (NETFOSE)	10.0	7.09		ug/Kg		71	44 - 155
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	9.34	8.49		ug/Kg		91	74 - 134
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	10.0	10.2		ug/Kg		102	53 - 158
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	9.44	8.95		ug/Kg		95	66 - 136
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.46	8.05		ug/Kg		85	79 - 139
3-Perfluoropropylpropanoic acid (3:3 FTCA)	10.0	8.94		ug/Kg		89	50 - 150
3-Perfluoropentylpropanoic acid (5:3 FTCA)	10.0	8.91		ug/Kg		89	50 - 150
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	10.0	9.17		ug/Kg		92	50 - 150
PFECHS	9.24	8.85		ug/Kg		96	50 - 150
PFPpS	9.20	9.18		ug/Kg		100	50 - 150
6:2 FTUCA	10.0	10.3		ug/Kg		103	50 - 150
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	10.0	8.00		ug/Kg		80	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	10.0	9.88		ug/Kg		99	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	10.0	9.31		ug/Kg		93	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	8.92	8.55		ug/Kg		96	50 - 150

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C8 FOSA	99		25 - 150
13C4 PFBA	88		25 - 150
13C5 PFPpA	96		25 - 150
13C2 PFHxA	107		25 - 150
13C4 PFHpA	109		25 - 150

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QC Sample Results

Client: Hawaii Department of Health
 Project/Site: DOH Maui Wildfire Ash Sample - LAHAINAASH
 DU-1

Job ID: 320-107200-1

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

Lab Sample ID: LCS 320-722692/2-A

Matrix: Solid

Analysis Batch: 726115

Client Sample ID: Lab Control Sample

Prep Type: Pre-Treatment

Prep Batch: 722692

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C4 PFOA	105		25 - 150
13C5 PFNA	107		25 - 150
13C2 PFDA	114		25 - 150
13C2 PFUnA	132		25 - 150
13C2 PFDoA	138		25 - 150
13C2 PFTeDA	130		25 - 150
13C2 PFHxDA	137		25 - 150
13C3 PFBS	101		25 - 150
18O2 PFHxS	122		25 - 150
13C4 PFOS	113		25 - 150
d5-NEtFOSAA	140		25 - 150
d3-NMeFOSAA	128		25 - 150
M2-4:2 FTS	139		25 - 150
M2-6:2 FTS	150		25 - 150
M2-8:2 FTS	178	*5+	25 - 150
d-N-MeFOSA-M	105		25 - 150
d-N-EtFOSA-M	109		25 - 150
d7-N-MeFOSE-M	135		25 - 150
d9-N-EtFOSE-M	152	*5+	25 - 150
13C3 HFPO-DA	82		25 - 150
13C-6:2 FTCA	107		25 - 150
13C-8:2 FTCA	98		25 - 150
13C2 10:2 FTS	181	*5+	25 - 150
13C-6:2 FTUCA	94		25 - 150

Lab Sample ID: LCSD 320-722692/3-A

Matrix: Solid

Analysis Batch: 726115

Client Sample ID: Lab Control Sample Dup

Prep Type: Pre-Treatment

Prep Batch: 722692

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec		RPD	
		Result	Qualifier				Limits	RPD	Limit	
Perfluorobutanoic acid (PFBA)	10.0	9.71		ug/Kg		97	76 - 136	3	30	
Perfluoropentanoic acid (PFPeA)	10.0	9.65		ug/Kg		97	69 - 129	0	30	
Perfluorohexanoic acid (PFHxA)	10.0	9.70		ug/Kg		97	71 - 131	3	30	
Perfluoroheptanoic acid (PFHpA)	10.0	9.04		ug/Kg		90	71 - 131	2	30	
Perfluorooctanoic acid (PFOA)	10.0	9.05		ug/Kg		90	72 - 132	2	30	
Perfluorononanoic acid (PFNA)	10.0	9.08		ug/Kg		91	73 - 133	3	30	
Perfluorodecanoic acid (PFDA)	10.0	8.90		ug/Kg		89	72 - 132	0	30	
Perfluoroundecanoic acid (PFUnA)	10.0	8.38		ug/Kg		84	66 - 126	24	30	
Perfluorododecanoic acid (PFDoA)	10.0	9.18		ug/Kg		92	71 - 131	3	30	
Perfluorotridecanoic acid (PFTTrDA)	10.0	8.50		ug/Kg		85	71 - 131	4	30	
Perfluorotetradecanoic acid (PFTeA)	10.0	9.60		ug/Kg		96	67 - 127	4	30	
Perfluoro-n-hexadecanoic acid (PFHxDA)	10.0	11.3		ug/Kg		113	75 - 135	14	30	
Perfluoro-n-octadecanoic acid (PFODA)	10.0	8.11		ug/Kg		81	53 - 130	5	30	

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QC Sample Results

Client: Hawaii Department of Health
 Project/Site: DOH Maui Wildfire Ash Sample - LAHAINAASH
 DU-1

Job ID: 320-107200-1

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

Lab Sample ID: LCSD 320-722692/3-A

Matrix: Solid

Analysis Batch: 726115

Client Sample ID: Lab Control Sample Dup

Prep Type: Pre-Treatment

Prep Batch: 722692

Analyte	Spike	LCSD	LCSD	Unit	D	%Rec	%Rec	RPD	RPD
	Added	Result	Qualifier				Limits		Limit
Perfluorobutanesulfonic acid (PFBS)	8.88	8.90		ug/Kg		100	69 - 129	1	30
Perfluoropentanesulfonic acid (PFPeS)	9.40	10.8		ug/Kg		115	66 - 126	2	30
Perfluorohexanesulfonic acid (PFHxS)	9.12	8.09		ug/Kg		89	62 - 122	1	30
Perfluoroheptanesulfonic acid (PFHpS)	9.54	8.92		ug/Kg		93	76 - 136	3	30
Perfluorooctanesulfonic acid (PFOS)	9.30	9.05		ug/Kg		97	68 - 141	1	30
Perfluorononanesulfonic acid (PFNS)	9.60	9.67		ug/Kg		101	72 - 132	1	30
Perfluorodecanesulfonic acid (PFDS)	9.64	12.2		ug/Kg		127	71 - 131	3	30
Perfluorododecanesulfonic acid (PFDoS)	9.70	11.4		ug/Kg		118	70 - 130	7	30
Perfluorooctanesulfonamide (FOSA)	10.0	9.24		ug/Kg		92	77 - 137	1	30
N-Methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	10.0	9.59		ug/Kg		96	72 - 132	4	30
N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	10.0	10.7		ug/Kg		107	72 - 132	10	30
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2 FTS)	9.38	12.4		ug/Kg		132	68 - 143	1	30
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)	9.52	8.88		ug/Kg		93	73 - 139	2	30
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2 FTS)	9.60	9.63		ug/Kg		100	75 - 135	6	30
1H,1H,2H,2H-Perfluorododecane sulfonic acid (10:2 FTS)	9.66	9.71		ug/Kg		101	69 - 145	6	30
N-ethylperfluorooctane sulfonamide (NEtFOSA)	10.0	8.53		ug/Kg		85	47 - 161	1	30
N-methylperfluorooctane sulfonamide (NMeFOSA)	10.0	8.91		ug/Kg		89	63 - 148	5	30
N-methylperfluorooctane sulfonamidoethanol (NMeFOSE)	10.0	9.17		ug/Kg		92	43 - 153	8	30
N-ethylperfluorooctane sulfonamidoethanol (NEtFOSE)	10.0	8.97		ug/Kg		90	44 - 155	23	30
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	9.34	8.44		ug/Kg		90	74 - 134	1	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	10.0	9.58		ug/Kg		96	53 - 158	7	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	9.44	9.59		ug/Kg		102	66 - 136	7	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	9.46	7.74		ug/Kg		82	79 - 139	4	30
3-Perfluoropropylpropanoic acid (3:3 FTCA)	10.0	9.51		ug/Kg		95	50 - 150	6	30
3-Perfluoropentylpropanoic acid (5:3 FTCA)	10.0	9.22		ug/Kg		92	50 - 150	4	30

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QC Sample Results

Client: Hawaii Department of Health
 Project/Site: DOH Maui Wildfire Ash Sample - LAHAINAASH
 DU-1

Job ID: 320-107200-1

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

Lab Sample ID: LCSD 320-722692/3-A

Client Sample ID: Lab Control Sample Dup

Matrix: Solid

Prep Type: Pre-Treatment

Analysis Batch: 726115

Prep Batch: 722692

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	10.0	9.78		ug/Kg		98	50 - 150	6	30	
PFECHS	9.24	9.09		ug/Kg		98	50 - 150	3	30	
PFPrS	9.20	9.32		ug/Kg		101	50 - 150	2	30	
6:2 FTUCA	10.0	9.89		ug/Kg		99	50 - 150	4	30	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	10.0	9.38		ug/Kg		94	50 - 150	16	30	
Perfluoro-4-methoxybutanoic acid (PFMBA)	10.0	9.87		ug/Kg		99	50 - 150	0	30	
Perfluoro-3-methoxypropanoic acid (PFMPA)	10.0	9.50		ug/Kg		95	50 - 150	2	30	
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	8.92	8.79		ug/Kg		99	50 - 150	3	30	

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
13C8 FOSA	104		25 - 150
13C4 PFBA	88		25 - 150
13C5 PFPeA	96		25 - 150
13C2 PFHxA	103		25 - 150
13C4 PFHpA	113		25 - 150
13C4 PFOA	103		25 - 150
13C5 PFNA	110		25 - 150
13C2 PFDA	111		25 - 150
13C2 PFUnA	143		25 - 150
13C2 PFDaA	137		25 - 150
13C2 PFTeDA	95		25 - 150
13C2 PFHxDA	113		25 - 150
13C3 PFBS	100		25 - 150
18O2 PFHxS	118		25 - 150
13C4 PFOS	116		25 - 150
d5-NEtFOSAA	137		25 - 150
d3-NMeFOSAA	132		25 - 150
M2-4:2 FTS	134		25 - 150
M2-6:2 FTS	157	*5+	25 - 150
M2-8:2 FTS	171	*5+	25 - 150
d-N-MeFOSA-M	95		25 - 150
d-N-EtFOSA-M	107		25 - 150
d7-N-MeFOSE-M	126		25 - 150
d9-N-EtFOSE-M	130		25 - 150
13C3 HFPO-DA	83		25 - 150
13C-6:2 FTCA	104		25 - 150
13C-8:2 FTCA	91		25 - 150
13C2 10:2 FTS	182	*5+	25 - 150
13C-6:2 FTUCA	98		25 - 150

QC Sample Results

Client: Hawaii Department of Health
 Project/Site: DOH Maui Wildfire Ash Sample - LAHAINAASH
 DU-1

Job ID: 320-107200-1

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	MDL	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
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
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
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
9-Chlorohexadecafluoro-3-oxanonan e-1-sulfonic acid (9Cl-PF3ONS)	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
11-Chloroeicosafuoro-3-oxaundecan e-1-sulfonic acid (11Cl-PF3OUdS)	ND		1.0		ug/Kg		11/22/23 19:22	12/11/23 12:42	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	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: DOH Maui Wildfire Ash Sample - LAHAINAASH
 DU-1

Job ID: 320-107200-1

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	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
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 FTUCA	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
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	
d5-NEtFOSAA	125		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	
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	
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	
13C2 10:2 FTS	116		25 - 150			11/22/23 19:22	12/11/23 12:42	1	
13C-6:2 FTUCA	105		25 - 150			11/22/23 19:22	12/11/23 12:42	1	

QC Sample Results

Client: Hawaii Department of Health
 Project/Site: DOH Maui Wildfire Ash Sample - LAHAINAASH
 DU-1

Job ID: 320-107200-1

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

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

Matrix: Solid

Analysis Batch: 726115

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
Perfluorobutanoic acid (PFBA)	10.0	18.2		ug/Kg		182	96 - 183
Perfluoropentanoic acid (PFPeA)	10.0	16.2	*+	ug/Kg		162	81 - 141
Perfluorohexanoic acid (PFHxA)	10.0	20.1	*+	ug/Kg		201	92 - 152
Perfluoroheptanoic acid (PFHpA)	10.0	17.2	*+	ug/Kg		172	100 - 160
Perfluorooctanoic acid (PFOA)	10.0	33.6		ug/Kg		336	169 - 414
Perfluorononanoic acid (PFNA)	10.0	14.5	*+	ug/Kg		145	82 - 142
Perfluorodecanoic acid (PFDA)	10.0	14.5	*+	ug/Kg		145	81 - 141
Perfluoroundecanoic acid (PFUnA)	10.0	10.0		ug/Kg		100	70 - 130
Perfluorododecanoic acid (PFDoA)	10.0	9.99		ug/Kg		100	63 - 123
Perfluorotridecanoic acid (PFTrDA)	10.0	7.17		ug/Kg		72	63 - 123
Perfluorotetradecanoic acid (PFTeA)	10.0	7.79		ug/Kg		78	55 - 115
Perfluorobutanesulfonic acid (PFBS)	8.88	9.19		ug/Kg		103	74 - 134
Perfluoropentanesulfonic acid (PFPeS)	9.40	11.9		ug/Kg		127	68 - 134
Perfluorohexanesulfonic acid (PFHxS)	9.12	8.65		ug/Kg		95	61 - 121
Perfluoroheptanesulfonic acid (PFHpS)	9.54	8.76		ug/Kg		92	68 - 128
Perfluorooctanesulfonic acid (PFOS)	9.30	9.85		ug/Kg		106	70 - 138
Perfluorononanesulfonic acid (PFNS)	9.60	9.79		ug/Kg		102	66 - 126
Perfluorodecanesulfonic acid (PFDS)	9.64	11.9		ug/Kg		123	66 - 126
Perfluorododecanesulfonic acid (PFDoS)	9.70	12.1		ug/Kg		125	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
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

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QC Sample Results

Client: Hawaii Department of Health
 Project/Site: DOH Maui Wildfire Ash Sample - LAHAINAASH
 DU-1

Job ID: 320-107200-1

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

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

Client Sample ID: Lab Control Sample

Matrix: Solid

Prep Type: Post-Treatment

Analysis Batch: 726115

Prep Batch: 722691

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	9.34	8.01		ug/Kg		86	74 - 134
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	10.0	7.70		ug/Kg		77	53 - 158
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	9.44	6.95		ug/Kg		74	66 - 136
4,8-Dioxo-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
3-Perfluoroheptylpropanoic acid (7:3 FTCA)	10.0	ND		ug/Kg		0	0 - 10
6:2 FTUCA	10.0	ND		ug/Kg		0	0 - 10
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	10.0	8.72		ug/Kg		87	50 - 150
Perfluoro-4-methoxybutanoic acid (PFMBA)	10.0	7.69		ug/Kg		77	50 - 150
Perfluoro-3-methoxypropanoic acid (PFMPA)	10.0	12.5		ug/Kg		125	50 - 150
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	8.92	9.05		ug/Kg		101	50 - 150

Isotope Dilution	LCS		Limits
	%Recovery	Qualifier	
13C8 FOSA	102		25 - 150
13C4 PFBA	91		25 - 150
13C5 PFPeA	101		25 - 150
13C2 PFHxA	111		25 - 150
13C4 PFHpA	112		25 - 150
13C4 PFOA	100		25 - 150
13C5 PFNA	105		25 - 150
13C2 PFDA	106		25 - 150
13C2 PFUnA	135		25 - 150
13C2 PFDaA	130		25 - 150
13C2 PFTeDA	115		25 - 150
13C2 PFHxDA	188	*5+	25 - 150
13C3 PFBS	105		25 - 150
18O2 PFHxS	118		25 - 150
13C4 PFOS	119		25 - 150
d5-NEtFOSAA	131		25 - 150
d3-NMeFOSAA	118		25 - 150
M2-4:2 FTS	0		0 - 10
M2-6:2 FTS	133		25 - 150
M2-8:2 FTS	154	*5+	25 - 150
d-N-MeFOSA-M	97		25 - 150
d-N-EtFOSA-M	113		25 - 150
d7-N-MeFOSE-M	125		25 - 150
d9-N-EtFOSE-M	144		25 - 150

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QC Sample Results

Client: Hawaii Department of Health
 Project/Site: DOH Maui Wildfire Ash Sample - LAHAINAASH
 DU-1

Job ID: 320-107200-1

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

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

Matrix: Solid

Analysis Batch: 726115

Client Sample ID: Lab Control Sample

Prep Type: Post-Treatment

Prep Batch: 722691

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C3 HFPO-DA	94		25 - 150
13C-6:2 FTCA	98		25 - 150
13C-8:2 FTCA	91		25 - 150
13C2 10:2 FTS	179	*5+	25 - 150
13C-6:2 FTUCA	89		25 - 150

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

Matrix: Solid

Analysis Batch: 726115

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	17.5		ug/Kg		175	96 - 183	4	30
Perfluoropentanoic acid (PFPeA)	10.0	17.2	*+	ug/Kg		172	81 - 141	6	30
Perfluorohexanoic acid (PFHxA)	10.0	21.5	*+	ug/Kg		215	92 - 152	7	30
Perfluoroheptanoic acid (PFHpA)	10.0	17.7	*+	ug/Kg		177	100 - 160	3	30
Perfluorooctanoic acid (PFOA)	10.0	29.3		ug/Kg		293	169 - 414	14	30
Perfluorononanoic acid (PFNA)	10.0	14.0		ug/Kg		140	82 - 142	3	30
Perfluorodecanoic acid (PFDA)	10.0	12.7		ug/Kg		127	81 - 141	13	30
Perfluoroundecanoic acid (PFUnA)	10.0	9.75		ug/Kg		97	70 - 130	3	30
Perfluorododecanoic acid (PFDoA)	10.0	12.4	*+	ug/Kg		124	63 - 123	22	30
Perfluorotridecanoic acid (PFTrDA)	10.0	10.5	*1	ug/Kg		105	63 - 123	38	30
Perfluorotetradecanoic acid (PFTeA)	10.0	8.68		ug/Kg		87	55 - 115	11	30
Perfluorobutanesulfonic acid (PFBS)	8.88	8.84		ug/Kg		100	74 - 134	4	30
Perfluoropentanesulfonic acid (PFPeS)	9.40	12.8	*+	ug/Kg		136	68 - 134	7	30
Perfluorohexanesulfonic acid (PFHxS)	9.12	8.28		ug/Kg		91	61 - 121	4	30
Perfluoroheptanesulfonic acid (PFHpS)	9.54	8.71		ug/Kg		91	68 - 128	1	30
Perfluorooctanesulfonic acid (PFOS)	9.30	9.78		ug/Kg		105	70 - 138	1	30
Perfluorononanesulfonic acid (PFNS)	9.60	8.91		ug/Kg		93	66 - 126	9	30
Perfluorodecanesulfonic acid (PFDS)	9.64	10.1		ug/Kg		105	66 - 126	16	30
Perfluorododecanesulfonic acid (PFDoS)	9.70	8.55	*1	ug/Kg		88	70 - 130	34	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

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QC Sample Results

Client: Hawaii Department of Health
 Project/Site: DOH Maui Wildfire Ash Sample - LAHAINAASH
 DU-1

Job ID: 320-107200-1

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

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

Matrix: Solid

Analysis Batch: 726115

Client Sample ID: Lab Control Sample Dup

Prep Type: Post-Treatment

Prep Batch: 722691

Analyte	Spike	LCSD	LCSD	Unit	D	%Rec	%Rec	RPD	Limit
	Added	Result	Qualifier				Limits		
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
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
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	9.34	8.03		ug/Kg		86	74 - 134	0	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA/GenX)	10.0	7.33		ug/Kg		73	53 - 158	5	30
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	9.44	6.28		ug/Kg		67	66 - 136	10	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 FTUCA	10.0	ND		ug/Kg		0	0 - 10	NC	30
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	10.0	8.61		ug/Kg		86	50 - 150	1	30
Perfluoro-4-methoxybutanoic acid (PFMBA)	10.0	8.67		ug/Kg		87	50 - 150	12	30
Perfluoro-3-methoxypropanoic acid (PFMPA)	10.0	13.0		ug/Kg		130	50 - 150	4	30
Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)	8.92	8.93		ug/Kg		100	50 - 150	1	30

Isotope Dilution	LCSD	LCSD	Limits
	%Recovery	Qualifier	
13C8 FOSA	110		25 - 150
13C4 PFBA	86		25 - 150
13C5 PFPeA	92		25 - 150
13C2 PFHxA	101		25 - 150
13C4 PFHpA	106		25 - 150
13C4 PFOA	101		25 - 150
13C5 PFNA	107		25 - 150
13C2 PFDA	113		25 - 150
13C2 PFUnA	126		25 - 150
13C2 PFDoA	79		25 - 150
13C2 PFTeDA	111		25 - 150
13C2 PFHxDA	154	*5+	25 - 150
13C3 PFBS	98		25 - 150

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QC Sample Results

Client: Hawaii Department of Health
 Project/Site: DOH Maui Wildfire Ash Sample - LAHAINAASH
 DU-1

Job ID: 320-107200-1

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

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

Matrix: Solid

Analysis Batch: 726115

Client Sample ID: Lab Control Sample Dup

Prep Type: Post-Treatment

Prep Batch: 722691

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
18O2 PFHxS	117		25 - 150
13C4 PFOS	114		25 - 150
d5-NEtFOSAA	118		25 - 150
d3-NMeFOSAA	123		25 - 150
M2-4:2 FTS	0		0 - 10
M2-6:2 FTS	145		25 - 150
M2-8:2 FTS	163	*5+	25 - 150
d-N-MeFOSA-M	92		25 - 150
d-N-EtFOSA-M	67		25 - 150
d7-N-MeFOSE-M	125		25 - 150
d9-N-EtFOSE-M	94		25 - 150
13C3 HFPO-DA	90		25 - 150
13C-6:2 FTCA	106		25 - 150
13C-8:2 FTCA	89		25 - 150
13C2 10:2 FTS	150		25 - 150
13C-6:2 FTUCA	93		25 - 150

QC Association Summary

Client: Hawaii Department of Health
 Project/Site: DOH Maui Wildfire Ash Sample - LAHAINA ASH
 DU-1

Job ID: 320-107200-1

LCMS

Prep Batch: 722691

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-107200-1	LAHAINA ASH DU-1	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	

Prep Batch: 722692

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-107200-1	LAHAINA ASH DU-1	Pre-Treatment	Solid	TOP Pre-Prep	
MB 320-722692/1-A	Method Blank	Pre-Treatment	Solid	TOP Pre-Prep	
LCS 320-722692/2-A	Lab Control Sample	Pre-Treatment	Solid	TOP Pre-Prep	
LCSD 320-722692/3-A	Lab Control Sample Dup	Pre-Treatment	Solid	TOP Pre-Prep	

Analysis Batch: 726115

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 320-722691/2-A	Lab Control Sample	Post-Treatment	Solid	537 (modified)	722691
LCS 320-722692/2-A	Lab Control Sample	Pre-Treatment	Solid	537 (modified)	722692
LCSD 320-722691/3-A	Lab Control Sample Dup	Post-Treatment	Solid	537 (modified)	722691
LCSD 320-722692/3-A	Lab Control Sample Dup	Pre-Treatment	Solid	537 (modified)	722692

Analysis Batch: 726774

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-107200-1	LAHAINA ASH DU-1	Post-Treatment	Solid	537 (modified)	722691
320-107200-1	LAHAINA ASH DU-1	Pre-Treatment	Solid	537 (modified)	722692
MB 320-722691/1-A	Method Blank	Post-Treatment	Solid	537 (modified)	722691
MB 320-722692/1-A	Method Blank	Pre-Treatment	Solid	537 (modified)	722692

Analysis Batch: 736564

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-107200-1	LAHAINA ASH DU-1	Pre-Treatment	Solid	Total PFCA-Sum	

Analysis Batch: 736565

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-107200-1	LAHAINA ASH DU-1	Post-Treatment	Solid	Total PFCA-Sum	

Analysis Batch: 736567

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-107200-1	LAHAINA ASH DU-1	Total/NA	Solid	Total PFCA-Dif	

Lab Chronicle

Client: Hawaii Department of Health
 Project/Site: DOH Maui Wildfire Ash Sample - LAHAINA ASH
 DU-1

Job ID: 320-107200-1

Client Sample ID: LAHAINA ASH DU-1

Lab Sample ID: 320-107200-1

Date Collected: 11/08/23 11:00

Matrix: Solid

Date Received: 11/16/23 09:15

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			1.06 g	10.0 mL	722691	11/22/23 19:22	FX	EET SAC
Post-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	726774	12/11/23 13:16	D1R	EET SAC
Pre-Treatment	Prep	TOP Pre-Prep			1.06 g	10.0 mL	722692	11/22/23 19:22	FX	EET SAC
Pre-Treatment	Analysis	537 (modified)		1	1 mL	1 mL	726774	12/11/23 14:12	D1R	EET SAC
Total/NA	Analysis	Total PFCA-Dif		1			736567	01/26/24 17:38	MEO	EET SAC
Post-Treatment	Analysis	Total PFCA-Sum		1			736565	12/11/23 13:16	MEO	EET SAC
Pre-Treatment	Analysis	Total PFCA-Sum		1			736564	12/11/23 14:12	MEO	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: DOH Maui Wildfire Ash Sample - LAHAINAASH
 DU-1

Job ID: 320-107200-1

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)	TOP Post-Prep	Solid	11-Chloroeicosafluoro-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-Perfluorohexane sulfonic acid (4:2 FTS)
537 (modified)	TOP Post-Prep	Solid	1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2 FTS)
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 FTUCA
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	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	Perfluoro (2-ethoxyethane) sulfonic acid (PFEEESA)
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)
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)

Accreditation/Certification Summary

Client: Hawaii Department of Health
 Project/Site: DOH Maui Wildfire Ash Sample - LAHAINA ASH
 DU-1

Job ID: 320-107200-1

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	Perfluorohexanesulfonic acid (PFHxS)
537 (modified)	TOP Post-Prep	Solid	Perfluorohexanoic acid (PFHxA)
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 Pre-Prep	Solid	11-Chloroeicosafluoro-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 FTUCA
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)
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)

Accreditation/Certification Summary

Client: Hawaii Department of Health
 Project/Site: DOH Maui Wildfire Ash Sample - LAHAINA ASH
 DU-1

Job ID: 320-107200-1

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	Perfluoro (2-ethoxyethane) sulfonic acid (PFEESA)
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)
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	PFPrS
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	PFPA
Total PFCA-Dif		Solid	Total PFCA
Total PFCA-Sum		Solid	Total PFCA

Method Summary

Client: Hawaii Department of Health
Project/Site: DOH Maui Wildfire Ash Sample - LAHAINA ASH
DU-1

Job ID: 320-107200-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	EET SAC
Total PFCA-Dif	Total PFCA (Treatment Difference)	TAL SOP	EET SAC
Total PFCA-Sum	Total PFCA (Summary)	TAL 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

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: DOH Maui Wildfire Ash Sample - LAHAINA ASH
DU-1

Job ID: 320-107200-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-107200-1	LAHAINA ASH DU-1	Solid	11/08/23 11:00	11/16/23 09:15

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15



Environment Testing

Sacramento Sample Receiving Notes (SSRN)

Loc: 320
107200

Tracking #: 7741 2350 0281

Job: _____

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

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

Therm. ID: 604 Corr. Factor: (+/-) N/A °C

Ice _____ Wet _____ Gel Other _____

Cooler Custody Seal: _____

Cooler ID: _____

Temp Observed: 12.7 °C Corrected: 12.4 °C
From: Temp Blank Sample

Notes: _____

3 gel packs w/ sampler
Samples bearing bubble warning

① no time

① glass not plastic

Opening/Processing The Shipment	Yes	No	NA
Cooler compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Cooler Temperature is acceptable?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Frozen samples show signs of thaw?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Initials: SO Date: 11/16/23

Unpacking/Labeling The Samples	Yes	No	NA
Containers are not broken or leaking?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples compromised/tampered with?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
COC is complete w/o discrepancies	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample custody seal?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Sample containers have legible labels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample date/times are provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appropriate containers are used?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sample bottles are completely filled?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sample preservatives verified?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is the Field Sampler's name on COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples w/o discrepancies?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Zero headspace?*	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Alkalinity has no headspace?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Perchlorate has headspace? (Methods 314, 331, 6850)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Multiphasic samples are not present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Trizma Lot #(s): _____

Ammonium

Acetate Lot #(s): _____

Login Completion	Yes	No	NA
Receipt Temperature on COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NCM Filed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Samples received within hold time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Log Release checked in TALS?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

Initials: SO Date: 11/17/23

Initials: SO Date: 4/11/20

Login Sample Receipt Checklist

Client: Hawaii Department of Health

Job Number: 320-107200-1

Login Number: 107200

List Source: Eurofins Sacramento

List Number: 1

Creator: Oropeza, Salvador

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



January 23, 2024

Hawaii Department of Health
919 Ala Moana Blvd
Room 206
Honolulu, HI 96814

Attn: Roger Brewer

RE: PFAS by NTA Results for Eurofins Job 320-107200-1

Dear Mr. Brewer,

Enclosed are the Non-Target Analysis (NTA) results for potential PFAS parameters in the one solid sample submitted to Eurofins in Job 320-107200-1. Client and laboratory sample IDs are as follows: LAHAINA ASH DU-1 (320-107200-1). Analysis was requested via LC-QTOF MS (liquid chromatography quadrupole time-of-flight mass spectrometry) for identification of potential PFAS analytes not determined in the routine targeted analyses that are typically applied to aqueous samples. The NTA determination uses high resolution mass spectrometry (HRMS) to identify potential PFAS parameters but inherently incurs an increased level of uncertainty and certified reference standards are not used to confirm reported results.

There were no non-target analytes identified as potential PFAS parameters with acceptable confidence levels in this sample in either positive or negative ionization modes and associated SWATH HRMS acquisitions.

Sample Preparation

For sample LAHAINA ASH DU-1 (320-107200-1), a 5 g aliquot of the solid sample was extracted using the laboratory work instruction for solid samples from Hawaii DOH. A 2.5 ml subsample of the resulting extract (0.5 g sample equivalent) was neutralized, diluted to 5 ml at final composition of 50:50 MeOH/Water, and a 300 ul aliquot of the diluted sample (1 g -> 10 ml) was filtered into an LC/MS injection vial for analysis by LC-QTOF MS.

Sample Analysis

The sample extracts were introduced into the LC system utilizing an optimized gradient to enhance the identification of early eluting compounds. The gradient ramps slowly over a period of 20 minutes where the compounds are separated on a 3x50mm Phenomenex Gemini C18 analytical column using 20mM ammonium acetate in water and methanol as mobile phases. The SCIEX X500r quadrupole time-of-flight mass spectrometer (QTOF MS) was set to run in sequential Electrospray Ionization (ESI) techniques in both positive and negative polarities utilizing the same gradient and mobile phases.

Results

Data were processed with SCIEX MarkerView deconvolution software. This software extracts the raw chromatograms across a defined mass range from 0-1500 amu and examines peaks of interest utilizing exact mass and MS/MS fragmentation. The peaks are compared to comprehensive fluorinated compound libraries where the software algorithm assigns possible matches to each peak, or feature. The observed features were then evaluated by a Eurofins analyst to confirm ample signal-to-noise as well as confirming the compound fit to the library match. The reported results include only peaks with a signal-to-noise greater than 10:1 and an absolute intensity greater than 1000 counts.

One limitation the software cannot account for are multiple isomers of the same compound. While the skeletal backbone and molecular formula will be the same, the match might represent a structural isomer of the identified compound.

As noted above, no positive identifications for any PFAS parameter were generated via the sample preparation, analyses, and data processing procedures described above.

Please do not hesitate to let us know if there are any questions.