

## LABORATORY REPORT

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State	Certification	State	Certification
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Alaska	IN00035	Montana	CERT0026
Arizona	AZ0432	Nebraska	NE-OS-05-04
Arkansas	IN00035	Nevada	IN00035
California	2920	New Hampshire*	2124
Colorado	IN00035	New Jersey*	IN598
Colorado Radiochemistry	IN00035	New Mexico	IN00035
Connecticut	PH-0132	New York*	11398
Delaware	IN035	North Carolina	18700
Florida(Primary AB)*	E87775	North Dakota	R-035
Georgia	929	Ohio	87775
Hawaii	IN035	Oklahoma	D9508
Idaho	IN00035	Oregon*	4156
Illinois*	200001	Pennsylvania*	68-00466
Illinois Microbiology	17767	Puerto Rico	IN00035
Illinois Radiochemistry	IN00035	Rhode Island	LAO00343
Indiana Chemistry	C-71-01	South Carolina	95005
Indiana Microbiology	M-76-07	South Dakota	IN00035
Iowa	098	Tennessee	TN02973
Kansas*	E-10233	Texas*	T104704187
Kentucky	90056	Texas/TCEQ	TX207
Louisiana*	LA014	Utah*	IN00035
Maine	IN00035	Vermont	VT-8775
Maryland	209	Virginia*	460275
Massachusetts	M-IN035	Washington	C837
Michigan	9926	West Virginia	9927 C
Minnesota*	018-999-338	Wisconsin	999766900
Mississippi	IN035	Wyoming	IN035
EPA	IN00035		

\*NELAP/TNI Recognized Accreditation Bodies

## LABORATORY CASE NARRATIVE

Client: Ann Arbor Water Treatment Plant

Report #: 516628CN

All method QC was within acceptance limits.

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05/14/2021

Authorized Signature

Title

Date

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## ANALYTICAL REPORT

Eurofins Lancaster Laboratories Env, LLC  
2425 New Holland Pike  
Lancaster, PA 17601  
Tel: (717)656-2300

Laboratory Job ID: 410-38187-1

Client Project/Site: PFAS

**For:**

Eurofins Eaton Analytical  
110 S Hill Street  
South Bend, Indiana 46617

Attn: South Bend Reports

*Barb Weyandt*

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Authorized for release by:  
5/13/2021 4:20:25 PM

Barbara Weyandt, Project Manager  
(717)556-7264  
[Barbara.Weyandt@eurofinset.com](mailto:Barbara.Weyandt@eurofinset.com)

### LINKS

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The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

- QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
  - Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
  - Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.
- Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

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*Barb Weyandt*

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Barbara Weyandt  
Project Manager  
5/13/2021 4:20:25 PM



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## Definitions/Glossary

Client: Eurofins Eaton Analytical  
Project/Site: PFAS

Job ID: 410-38187-1

### Qualifiers

#### LCMS

Qualifier	Qualifier Description
*5+	Isotope dilution analyte is outside acceptance limits, high biased.
I	Value is EMPC (estimated maximum possible concentration).

### 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
1C	Result is from the primary column on a dual-column method.
2C	Result is from the confirmation column on a dual-column method.
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: Eurofins Eaton Analytical  
Project/Site: PFAS

Job ID: 410-38187-1

**Job ID: 410-38187-1**

**Laboratory: Eurofins Lancaster Laboratories Env, LLC**

## Narrative

### Job Narrative 410-38187-1

#### Receipt

The sample was received on 5/4/2021 10:27 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 0.1° C.

#### Receipt Exceptions

Containers were received preserved with Nitric Acid for AH60451 Biosolids (410-38187-1)

#### LCMS

Method 537 (modified): The recovery for the labeled isotope(s) in the following sample: AH60451 Biosolids (410-38187-1) is outside the QC acceptance limits. Since the recovery is high and the native analyte is not detected in the sample, the data is reported.

Method 537 (modified): The recovery for labeled isotope: M2-8:2 FTS is outside the QC acceptance limits in the opening continuing calibration verification standard. Since the recovery for the labeled isotope is within QC limits in the following sample: AH60451 Biosolids (410-38187-1), the data is reported.

Method 537 (modified): The sample injection standard peak areas in the following sample: AH60451 Biosolids (410-38187-1). are outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

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

#### Organic Prep

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



## Detection Summary

Client: Eurofins Eaton Analytical  
Project/Site: PFAS

Job ID: 410-38187-1

**Client Sample ID: AH60451 Biosolids**

**Lab Sample ID: 410-38187-1**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid	23	I	4.6		ug/Kg	1	✱	537 IDA	Total/NA
Perfluorooctanesulfonic acid	9.5	I	4.6		ug/Kg	1	✱	537 IDA	Total/NA
HFPODA	26		15		ug/Kg	1	✱	537 IDA	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Lancaster Laboratories Env, LLC

# Client Sample Results

Client: Eurofins Eaton Analytical  
Project/Site: PFAS

Job ID: 410-38187-1

Client Sample ID: AH60451 Biosolids

Lab Sample ID: 410-38187-1

Date Collected: 04/28/21 06:10

Matrix: Solid

Date Received: 05/04/21 10:27

Percent Solids: 6.5

## Method: 537 IDA - EPA 537 Isotope Dilution

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid	23	I	4.6		ug/Kg	☆	05/10/21 21:50	05/11/21 22:25	1
Perfluoroheptanoic acid	<4.6		4.6		ug/Kg	☆	05/10/21 21:50	05/11/21 22:25	1
Perfluorooctanoic acid	<4.6		4.6		ug/Kg	☆	05/10/21 21:50	05/11/21 22:25	1
Perfluorononanoic acid	<4.6		4.6		ug/Kg	☆	05/10/21 21:50	05/11/21 22:25	1
Perfluorodecanoic acid	<4.6		4.6		ug/Kg	☆	05/10/21 21:50	05/11/21 22:25	1
Perfluorotridecanoic acid	<4.6		4.6		ug/Kg	☆	05/10/21 21:50	05/11/21 22:25	1
Perfluorotetradecanoic acid	<4.6		4.6		ug/Kg	☆	05/10/21 21:50	05/11/21 22:25	1
Perfluorobutanesulfonic acid	<15		15		ug/Kg	☆	05/10/21 21:50	05/11/21 22:25	1
Perfluorohexanesulfonic acid	<4.6		4.6		ug/Kg	☆	05/10/21 21:50	05/11/21 22:25	1
Perfluorooctanesulfonic acid	9.5	I	4.6		ug/Kg	☆	05/10/21 21:50	05/11/21 22:25	1
NEtFOSAA	<15		15		ug/Kg	☆	05/10/21 21:50	05/11/21 22:25	1
NMeFOSAA	<15		15		ug/Kg	☆	05/10/21 21:50	05/11/21 22:25	1
Perfluoropentanesulfonic acid	<4.6		4.6		ug/Kg	☆	05/10/21 21:50	05/11/21 22:25	1
Perfluoroheptanesulfonic acid	<4.6		4.6		ug/Kg	☆	05/10/21 21:50	05/11/21 22:25	1
Perfluorononanesulfonic acid	<4.6		4.6		ug/Kg	☆	05/10/21 21:50	05/11/21 22:25	1
Perfluorodecanesulfonic acid	<4.6		4.6		ug/Kg	☆	05/10/21 21:50	05/11/21 22:25	1
Perfluorooctanesulfonamide	<4.6		4.6		ug/Kg	☆	05/10/21 21:50	05/11/21 22:25	1
Perfluorobutanoic acid	<15		15		ug/Kg	☆	05/10/21 21:50	05/11/21 22:25	1
Perfluoropentanoic acid	<4.6		4.6		ug/Kg	☆	05/10/21 21:50	05/11/21 22:25	1
HFPODA	26		15		ug/Kg	☆	05/10/21 21:50	05/11/21 22:25	1
DONA	<23		23		ug/Kg	☆	05/10/21 21:50	05/11/21 22:25	1
9CI-PF3ONS	<15		15		ug/Kg	☆	05/10/21 21:50	05/11/21 22:25	1
11CI-PF3OUdS	<4.6		4.6		ug/Kg	☆	05/10/21 21:50	05/11/21 22:25	1
Perfluoroundecanoic acid	<4.6		4.6		ug/Kg	☆	05/10/21 21:50	05/11/21 22:25	1
Perfluorododecanoic acid	<4.6		4.6		ug/Kg	☆	05/10/21 21:50	05/11/21 22:25	1
8:2 Fluorotelomer sulfonic acid	<23		23		ug/Kg	☆	05/10/21 21:50	05/11/21 22:25	1
4:2 Fluorotelomer sulfonic acid	<15		15		ug/Kg	☆	05/10/21 21:50	05/11/21 22:25	1
6:2 Fluorotelomer sulfonic acid	<15		15		ug/Kg	☆	05/10/21 21:50	05/11/21 22:25	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
M2-4:2 FTS	63		10 - 169				05/10/21 21:50	05/11/21 22:25	1
M2-8:2 FTS	83		10 - 178				05/10/21 21:50	05/11/21 22:25	1
M2-6:2 FTS	111		10 - 182				05/10/21 21:50	05/11/21 22:25	1
13C5 PFHxA	24		11 - 138				05/10/21 21:50	05/11/21 22:25	1
13C4 PFHpA	44		15 - 139				05/10/21 21:50	05/11/21 22:25	1
13C8 PFOA	51		21 - 133				05/10/21 21:50	05/11/21 22:25	1
13C9 PFNA	54		15 - 145				05/10/21 21:50	05/11/21 22:25	1
13C6 PFDA	49		21 - 134				05/10/21 21:50	05/11/21 22:25	1
13C7 PFUnA	46		15 - 138				05/10/21 21:50	05/11/21 22:25	1
13C2-PFDoDA	36		28 - 126				05/10/21 21:50	05/11/21 22:25	1
13C2 PFTeDA	47		10 - 138				05/10/21 21:50	05/11/21 22:25	1
13C3 PFBS	246	*5+	23 - 130				05/10/21 21:50	05/11/21 22:25	1
13C3 PFHxS	62		24 - 136				05/10/21 21:50	05/11/21 22:25	1
13C8 PFOS	71		31 - 130				05/10/21 21:50	05/11/21 22:25	1
d3-NMeFOSAA	51		10 - 172				05/10/21 21:50	05/11/21 22:25	1
d5-NEtFOSAA	59		10 - 176				05/10/21 21:50	05/11/21 22:25	1
13C8 FOSA	53		25 - 135				05/10/21 21:50	05/11/21 22:25	1
13C4 PFBA	52		12 - 137				05/10/21 21:50	05/11/21 22:25	1
13C5 PFPeA	96		12 - 135				05/10/21 21:50	05/11/21 22:25	1
13C3 HFPO-DA	20		10 - 152				05/10/21 21:50	05/11/21 22:25	1

Eurofins Lancaster Laboratories Env, LLC

# Client Sample Results

Client: Eurofins Eaton Analytical  
Project/Site: PFAS

Job ID: 410-38187-1

**Client Sample ID: AH60451 Biosolids**  
**Date Collected: 04/28/21 06:10**  
**Date Received: 05/04/21 10:27**

**Lab Sample ID: 410-38187-1**  
**Matrix: Solid**  
**Percent Solids: 6.5**

General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	93.5		1.0		%			05/06/21 10:20	1
Percent Solids	6.5		1.0		%			05/06/21 10:20	1

# Isotope Dilution Summary

Client: Eurofins Eaton Analytical  
Project/Site: PFAS

Job ID: 410-38187-1

## Method: 537 IDA - EPA 537 Isotope Dilution

Matrix: Solid

Prep Type: Total/NA

### Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	M242FTS (10-169)	M282FTS (10-178)	M262FTS (10-182)	13C5PHA (11-138)	C4PFHA (15-139)	C8PFOA (21-133)	C9PFNA (15-145)	C6PFDA (21-134)
410-38187-1	AH60451 Biosolids	63	83	111	24	44	51	54	49
LCS 410-124666/2-B	Lab Control Sample	100	98	100	89	90	95	93	87
LCSD 410-124666/3-B	Lab Control Sample Dup	71	74	71	64	61	68	64	60
MB 410-124666/1-B	Method Blank	137	153	154	128	126	133	126	128

### Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	13C7PUA (15-138)	PFDODA (28-126)	PFTDA (10-138)	C3PFBS (23-130)	C3PFHS (24-136)	C8PFOS (31-130)	d3NMFOS (10-172)	d5NEFOS (10-176)
410-38187-1	AH60451 Biosolids	46	36	47	246 *5+	62	71	51	59
LCS 410-124666/2-B	Lab Control Sample	88	81	70	103	92	96	80	81
LCSD 410-124666/3-B	Lab Control Sample Dup	63	64	57	72	65	64	64	62
MB 410-124666/1-B	Method Blank	125	121	114	138 *5+	126	119	115	131

### Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFOSA (25-135)	PFBA (12-137)	PFPeA (12-135)	HFPODA (10-152)
410-38187-1	AH60451 Biosolids	53	52	96	20
LCS 410-124666/2-B	Lab Control Sample	86	93	95	90
LCSD 410-124666/3-B	Lab Control Sample Dup	66	65	67	61
MB 410-124666/1-B	Method Blank	119	118	123	149

### Surrogate Legend

M242FTS = M2-4:2 FTS  
M282FTS = M2-8:2 FTS  
M262FTS = M2-6:2 FTS  
13C5PHA = 13C5 PFHxA  
C4PFHA = 13C4 PFHpA  
C8PFOA = 13C8 PFOA  
C9PFNA = 13C9 PFNA  
C6PFDA = 13C6 PFDA  
13C7PUA = 13C7 PFUnA  
PFDODA = 13C2-PFDODA  
PFTDA = 13C2 PFTeDA  
C3PFBS = 13C3 PFBS  
C3PFHS = 13C3 PFHxS  
C8PFOS = 13C8 PFOS  
d3NMFOS = d3-NMeFOSAA  
d5NEFOS = d5-NEtFOSAA  
PFOSA = 13C8 FOSA  
PFBA = 13C4 PFBA  
PFPeA = 13C5 PFPeA  
HFPODA = 13C3 HFPO-DA

# QC Sample Results

Client: Eurofins Eaton Analytical  
Project/Site: PFAS

Job ID: 410-38187-1

## Method: 537 IDA - EPA 537 Isotope Dilution

Lab Sample ID: MB 410-124666/1-B

Matrix: Solid

Analysis Batch: 125092

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 124666

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid	<0.30		0.30		ug/Kg		05/10/21 21:50	05/11/21 21:53	1
Perfluoroheptanoic acid	<0.30		0.30		ug/Kg		05/10/21 21:50	05/11/21 21:53	1
Perfluorooctanoic acid	<0.30		0.30		ug/Kg		05/10/21 21:50	05/11/21 21:53	1
Perfluorononanoic acid	<0.30		0.30		ug/Kg		05/10/21 21:50	05/11/21 21:53	1
Perfluorodecanoic acid	<0.30		0.30		ug/Kg		05/10/21 21:50	05/11/21 21:53	1
Perfluorotridecanoic acid	<0.30		0.30		ug/Kg		05/10/21 21:50	05/11/21 21:53	1
Perfluorotetradecanoic acid	<0.30		0.30		ug/Kg		05/10/21 21:50	05/11/21 21:53	1
Perfluorobutanesulfonic acid	<1.0		1.0		ug/Kg		05/10/21 21:50	05/11/21 21:53	1
Perfluorohexanesulfonic acid	<0.30		0.30		ug/Kg		05/10/21 21:50	05/11/21 21:53	1
Perfluorooctanesulfonic acid	<0.30		0.30		ug/Kg		05/10/21 21:50	05/11/21 21:53	1
NEtFOSAA	<1.0		1.0		ug/Kg		05/10/21 21:50	05/11/21 21:53	1
NMeFOSAA	<1.0		1.0		ug/Kg		05/10/21 21:50	05/11/21 21:53	1
Perfluoropentanesulfonic acid	<0.30		0.30		ug/Kg		05/10/21 21:50	05/11/21 21:53	1
Perfluoroheptanesulfonic acid	<0.30		0.30		ug/Kg		05/10/21 21:50	05/11/21 21:53	1
Perfluorononanesulfonic acid	<0.30		0.30		ug/Kg		05/10/21 21:50	05/11/21 21:53	1
Perfluorodecanesulfonic acid	<0.30		0.30		ug/Kg		05/10/21 21:50	05/11/21 21:53	1
Perfluorooctanesulfonamide	<0.30		0.30		ug/Kg		05/10/21 21:50	05/11/21 21:53	1
Perfluorobutanoic acid	<1.0		1.0		ug/Kg		05/10/21 21:50	05/11/21 21:53	1
Perfluoropentanoic acid	<0.30		0.30		ug/Kg		05/10/21 21:50	05/11/21 21:53	1
HFPODA	<1.0		1.0		ug/Kg		05/10/21 21:50	05/11/21 21:53	1
DONA	<1.5		1.5		ug/Kg		05/10/21 21:50	05/11/21 21:53	1
9CI-PF3ONS	<1.0		1.0		ug/Kg		05/10/21 21:50	05/11/21 21:53	1
11CI-PF3OUdS	<0.30		0.30		ug/Kg		05/10/21 21:50	05/11/21 21:53	1
Perfluoroundecanoic acid	<0.30		0.30		ug/Kg		05/10/21 21:50	05/11/21 21:53	1
Perfluorododecanoic acid	<0.30		0.30		ug/Kg		05/10/21 21:50	05/11/21 21:53	1
8:2 Fluorotelomer sulfonic acid	<1.5		1.5		ug/Kg		05/10/21 21:50	05/11/21 21:53	1
4:2 Fluorotelomer sulfonic acid	<1.0		1.0		ug/Kg		05/10/21 21:50	05/11/21 21:53	1
6:2 Fluorotelomer sulfonic acid	<1.0		1.0		ug/Kg		05/10/21 21:50	05/11/21 21:53	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-4:2 FTS	137		10 - 169	05/10/21 21:50	05/11/21 21:53	1
M2-8:2 FTS	153		10 - 178	05/10/21 21:50	05/11/21 21:53	1
M2-6:2 FTS	154		10 - 182	05/10/21 21:50	05/11/21 21:53	1
13C5 PFHxA	128		11 - 138	05/10/21 21:50	05/11/21 21:53	1
13C4 PFHpA	126		15 - 139	05/10/21 21:50	05/11/21 21:53	1
13C8 PFOA	133		21 - 133	05/10/21 21:50	05/11/21 21:53	1
13C9 PFNA	126		15 - 145	05/10/21 21:50	05/11/21 21:53	1
13C6 PFDA	128		21 - 134	05/10/21 21:50	05/11/21 21:53	1
13C7 PFUnA	125		15 - 138	05/10/21 21:50	05/11/21 21:53	1
13C2-PFDoDA	121		28 - 126	05/10/21 21:50	05/11/21 21:53	1
13C2 PFTeDA	114		10 - 138	05/10/21 21:50	05/11/21 21:53	1
13C3 PFBS	138	*5+	23 - 130	05/10/21 21:50	05/11/21 21:53	1
13C3 PFHxS	126		24 - 136	05/10/21 21:50	05/11/21 21:53	1
13C8 PFOS	119		31 - 130	05/10/21 21:50	05/11/21 21:53	1
d3-NMeFOSAA	115		10 - 172	05/10/21 21:50	05/11/21 21:53	1
d5-NEtFOSAA	131		10 - 176	05/10/21 21:50	05/11/21 21:53	1
13C8 FOSA	119		25 - 135	05/10/21 21:50	05/11/21 21:53	1
13C4 PFBA	118		12 - 137	05/10/21 21:50	05/11/21 21:53	1

Eurofins Lancaster Laboratories Env, LLC

# QC Sample Results

Client: Eurofins Eaton Analytical  
Project/Site: PFAS

Job ID: 410-38187-1

## Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: MB 410-124666/1-B

Matrix: Solid

Analysis Batch: 125092

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 124666

Isotope Dilution	MB MB		Limits	Prepared		Dil Fac
	%Recovery	Qualifier			Analyzed	
13C5 PFPeA	123		12 - 135	05/10/21 21:50	05/11/21 21:53	1
13C3 HFPO-DA	149		10 - 152	05/10/21 21:50	05/11/21 21:53	1

Lab Sample ID: LCS 410-124666/2-B

Matrix: Solid

Analysis Batch: 125092

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 124666

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorohexanoic acid	25.0	26.1		ug/Kg		104	61 - 147
Perfluoroheptanoic acid	25.0	28.4		ug/Kg		114	61 - 151
Perfluorooctanoic acid	25.0	25.4		ug/Kg		102	62 - 144
Perfluorononanoic acid	25.0	26.1		ug/Kg		104	62 - 148
Perfluorodecanoic acid	25.0	27.8		ug/Kg		111	62 - 142
Perfluorotridecanoic acid	25.0	26.0		ug/Kg		104	57 - 152
Perfluorotetradecanoic acid	25.0	26.5		ug/Kg		106	60 - 147
Perfluorobutanesulfonic acid	22.1	21.0		ug/Kg		95	62 - 137
Perfluorohexanesulfonic acid	22.8	23.3		ug/Kg		102	57 - 135
Perfluorooctanesulfonic acid	23.1	22.9		ug/Kg		99	48 - 134
NEtFOSAA	25.0	26.3		ug/Kg		105	50 - 140
NMeFOSAA	25.0	25.5		ug/Kg		102	53 - 149
Perfluoropentanesulfonic acid	23.5	20.5		ug/Kg		87	65 - 145
Perfluoroheptanesulfonic acid	23.8	23.2		ug/Kg		97	67 - 138
Perfluorononanesulfonic acid	24.0	23.5		ug/Kg		98	63 - 143
Perfluorodecanesulfonic acid	24.1	22.0		ug/Kg		91	60 - 142
Perfluorooctanesulfonamide	25.0	29.1		ug/Kg		116	52 - 132
Perfluorobutanoic acid	25.0	24.8		ug/Kg		99	50 - 185
Perfluoropentanoic acid	25.0	25.7		ug/Kg		103	69 - 144
HFPODA	25.0	20.6		ug/Kg		82	29 - 162
DONA	23.6	27.0		ug/Kg		114	48 - 155
9Cl-PF3ONS	23.3	24.4		ug/Kg		105	48 - 146
11Cl-PF3OUdS	23.3	22.1		ug/Kg		95	45 - 145
Perfluoroundecanoic acid	25.0	27.4		ug/Kg		109	62 - 144
Perfluorododecanoic acid	25.0	28.8		ug/Kg		115	60 - 147
8:2 Fluorotelomer sulfonic acid	24.0	24.1		ug/Kg		101	50 - 147
4:2 Fluorotelomer sulfonic acid	23.4	22.5		ug/Kg		96	55 - 132
6:2 Fluorotelomer sulfonic acid	23.7	24.0		ug/Kg		101	53 - 137

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
M2-4:2 FTS	100		10 - 169
M2-8:2 FTS	98		10 - 178
M2-6:2 FTS	100		10 - 182
13C5 PFHxA	89		11 - 138
13C4 PFHpA	90		15 - 139
13C8 PFOA	95		21 - 133
13C9 PFNA	93		15 - 145
13C6 PFDA	87		21 - 134
13C7 PFUnA	88		15 - 138
13C2-PFDoDA	81		28 - 126
13C2 PFTeDA	70		10 - 138

Eurofins Lancaster Laboratories Env, LLC

# QC Sample Results

Client: Eurofins Eaton Analytical  
Project/Site: PFAS

Job ID: 410-38187-1

## Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: LCS 410-124666/2-B

Matrix: Solid

Analysis Batch: 125092

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 124666

Isotope Dilution	LCS		Limits
	%Recovery	Qualifier	
13C3 PFBS	103		23 - 130
13C3 PFHxS	92		24 - 136
13C8 PFOS	96		31 - 130
d3-NMeFOSAA	80		10 - 172
d5-NEtFOSAA	81		10 - 176
13C8 FOSA	86		25 - 135
13C4 PFBA	93		12 - 137
13C5 PFPeA	95		12 - 135
13C3 HFPO-DA	90		10 - 152

Lab Sample ID: LCSD 410-124666/3-B

Matrix: Solid

Analysis Batch: 125092

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 124666

Analyte	Spike	LCSD	LCSD	Unit	D	%Rec	%Rec.	RPD	RPD
	Added	Result	Qualifier				Limits		Limit
Perfluorohexanoic acid	25.0	26.2		ug/Kg		105	61 - 147	1	30
Perfluoroheptanoic acid	25.0	28.9		ug/Kg		116	61 - 151	2	30
Perfluorooctanoic acid	25.0	25.3		ug/Kg		101	62 - 144	1	30
Perfluorononanoic acid	25.0	27.4		ug/Kg		110	62 - 148	5	30
Perfluorodecanoic acid	25.0	28.8		ug/Kg		115	62 - 142	4	30
Perfluorotridecanoic acid	25.0	25.9		ug/Kg		103	57 - 152	1	30
Perfluorotetradecanoic acid	25.0	26.8		ug/Kg		107	60 - 147	1	30
Perfluorobutanesulfonic acid	22.1	21.4		ug/Kg		97	62 - 137	2	30
Perfluorohexanesulfonic acid	22.8	23.4		ug/Kg		103	57 - 135	0	30
Perfluorooctanesulfonic acid	23.1	23.8		ug/Kg		103	48 - 134	4	30
NEtFOSAA	25.0	26.1		ug/Kg		105	50 - 140	0	30
NMeFOSAA	25.0	24.2		ug/Kg		97	53 - 149	6	30
Perfluoropentanesulfonic acid	23.5	20.8		ug/Kg		89	65 - 145	2	30
Perfluoroheptanesulfonic acid	23.8	23.0		ug/Kg		96	67 - 138	1	30
Perfluorononanesulfonic acid	24.0	24.0		ug/Kg		100	63 - 143	2	30
Perfluorodecanesulfonic acid	24.1	23.6		ug/Kg		98	60 - 142	7	30
Perfluorooctanesulfonamide	25.0	29.5		ug/Kg		118	52 - 132	1	30
Perfluorobutanoic acid	25.0	25.1		ug/Kg		100	50 - 185	1	30
Perfluoropentanoic acid	25.0	24.8		ug/Kg		99	69 - 144	4	30
HFPODA	25.0	20.7		ug/Kg		83	29 - 162	1	30
DONA	23.6	29.2		ug/Kg		124	48 - 155	8	30
9CI-PF3ONS	23.3	26.2		ug/Kg		113	48 - 146	7	30
11CI-PF3OUdS	23.3	24.1		ug/Kg		104	45 - 145	9	30
Perfluoroundecanoic acid	25.0	28.5		ug/Kg		114	62 - 144	4	30
Perfluorododecanoic acid	25.0	26.8		ug/Kg		107	60 - 147	7	30
8:2 Fluorotelomer sulfonic acid	24.0	24.2		ug/Kg		101	50 - 147	0	30
4:2 Fluorotelomer sulfonic acid	23.4	21.8		ug/Kg		93	55 - 132	3	30
6:2 Fluorotelomer sulfonic acid	23.7	23.3		ug/Kg		98	53 - 137	3	30

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
M2-4:2 FTS	71		10 - 169
M2-8:2 FTS	74		10 - 178
M2-6:2 FTS	71		10 - 182
13C5 PFHxA	64		11 - 138

Eurofins Lancaster Laboratories Env, LLC

# QC Sample Results

Client: Eurofins Eaton Analytical  
Project/Site: PFAS

Job ID: 410-38187-1

## Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: LCSD 410-124666/3-B

Matrix: Solid

Analysis Batch: 125092

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 124666

Isotope Dilution	LCSD		Limits
	%Recovery	Qualifier	
13C4 PFHpA	61		15 - 139
13C8 PFOA	68		21 - 133
13C9 PFNA	64		15 - 145
13C6 PFDA	60		21 - 134
13C7 PFUnA	63		15 - 138
13C2-PFDoDA	64		28 - 126
13C2 PFTeDA	57		10 - 138
13C3 PFBS	72		23 - 130
13C3 PFHxS	65		24 - 136
13C8 PFOS	64		31 - 130
d3-NMeFOSAA	64		10 - 172
d5-NEtFOSAA	62		10 - 176
13C8 FOSA	66		25 - 135
13C4 PFBA	65		12 - 137
13C5 PFPeA	67		12 - 135
13C3 HFPO-DA	61		10 - 152



# QC Association Summary

Client: Eurofins Eaton Analytical  
Project/Site: PFAS

Job ID: 410-38187-1

## LCMS

### Prep Batch: 124666

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-38187-1 - RA	AH60451 Biosolids	Total/NA	Solid	EPA 537 (Mod)	
410-38187-1	AH60451 Biosolids	Total/NA	Solid	EPA 537 (Mod)	
MB 410-124666/1-B	Method Blank	Total/NA	Solid	EPA 537 (Mod)	
LCS 410-124666/2-B	Lab Control Sample	Total/NA	Solid	EPA 537 (Mod)	
LCSD 410-124666/3-B	Lab Control Sample Dup	Total/NA	Solid	EPA 537 (Mod)	

### Cleanup Batch: 124667

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-38187-1 - RA	AH60451 Biosolids	Total/NA	Solid	Extract Aliquot	124666
410-38187-1	AH60451 Biosolids	Total/NA	Solid	Extract Aliquot	124666
MB 410-124666/1-B	Method Blank	Total/NA	Solid	Extract Aliquot	124666
LCS 410-124666/2-B	Lab Control Sample	Total/NA	Solid	Extract Aliquot	124666
LCSD 410-124666/3-B	Lab Control Sample Dup	Total/NA	Solid	Extract Aliquot	124666

### Analysis Batch: 125092

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-38187-1	AH60451 Biosolids	Total/NA	Solid	537 IDA	124667
MB 410-124666/1-B	Method Blank	Total/NA	Solid	537 IDA	124667
LCS 410-124666/2-B	Lab Control Sample	Total/NA	Solid	537 IDA	124667
LCSD 410-124666/3-B	Lab Control Sample Dup	Total/NA	Solid	537 IDA	124667

### Analysis Batch: 125467

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-38187-1 - RA	AH60451 Biosolids	Total/NA	Solid	537 IDA	124667

## General Chemistry

### Analysis Batch: 123204

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-38187-1	AH60451 Biosolids	Total/NA	Solid	Moisture	

# Lab Chronicle

Client: Eurofins Eaton Analytical  
Project/Site: PFAS

Job ID: 410-38187-1

**Client Sample ID: AH60451 Biosolids**

**Lab Sample ID: 410-38187-1**

**Date Collected: 04/28/21 06:10**

**Matrix: Solid**

**Date Received: 05/04/21 10:27**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	123204	05/06/21 10:20	UVJN	ELLE

**Client Sample ID: AH60451 Biosolids**

**Lab Sample ID: 410-38187-1**

**Date Collected: 04/28/21 06:10**

**Matrix: Solid**

**Date Received: 05/04/21 10:27**

**Percent Solids: 6.5**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	EPA 537 (Mod)			124666	05/10/21 21:50	QLP7	ELLE
Total/NA	Cleanup	Extract Aliquot			124667	05/10/21 21:57	QLP7	ELLE
Total/NA	Analysis	537 IDA		1	125092	05/11/21 22:25	DIJ6	ELLE
Total/NA	Prep	EPA 537 (Mod)	RA		124666	05/10/21 21:50	QLP7	ELLE
Total/NA	Cleanup	Extract Aliquot	RA		124667	05/10/21 21:57	QLP7	ELLE
Total/NA	Analysis	537 IDA	RA	1	125467	05/12/21 15:40	DIJ6	ELLE

## Laboratory References:

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

# Accreditation/Certification Summary

Client: Eurofins Eaton Analytical  
Project/Site: PFAS

Job ID: 410-38187-1

## Laboratory: Eurofins Lancaster Laboratories Env, LLC

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

Authority	Program	Identification Number	Expiration Date
Michigan	State	9930	01-31-22

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 IDA	EPA 537 (Mod)	Solid	11CI-PF3OUdS
537 IDA	EPA 537 (Mod)	Solid	4:2 Fluorotelomer sulfonic acid
537 IDA	EPA 537 (Mod)	Solid	6:2 Fluorotelomer sulfonic acid
537 IDA	EPA 537 (Mod)	Solid	8:2 Fluorotelomer sulfonic acid
537 IDA	EPA 537 (Mod)	Solid	9CI-PF3ONS
537 IDA	EPA 537 (Mod)	Solid	DONA
537 IDA	EPA 537 (Mod)	Solid	HFPODA
537 IDA	EPA 537 (Mod)	Solid	NEtFOSAA
537 IDA	EPA 537 (Mod)	Solid	NMeFOSAA
537 IDA	EPA 537 (Mod)	Solid	Perfluorobutanesulfonic acid
537 IDA	EPA 537 (Mod)	Solid	Perfluorobutanoic acid
537 IDA	EPA 537 (Mod)	Solid	Perfluorodecanesulfonic acid
537 IDA	EPA 537 (Mod)	Solid	Perfluorodecanoic acid
537 IDA	EPA 537 (Mod)	Solid	Perfluorododecanoic acid
537 IDA	EPA 537 (Mod)	Solid	Perfluoroheptanesulfonic acid
537 IDA	EPA 537 (Mod)	Solid	Perfluoroheptanoic acid
537 IDA	EPA 537 (Mod)	Solid	Perfluorohexanesulfonic acid
537 IDA	EPA 537 (Mod)	Solid	Perfluorohexanoic acid
537 IDA	EPA 537 (Mod)	Solid	Perfluorononanesulfonic acid
537 IDA	EPA 537 (Mod)	Solid	Perfluorononanoic acid
537 IDA	EPA 537 (Mod)	Solid	Perfluorooctanesulfonamide
537 IDA	EPA 537 (Mod)	Solid	Perfluorooctanesulfonic acid
537 IDA	EPA 537 (Mod)	Solid	Perfluorooctanoic acid
537 IDA	EPA 537 (Mod)	Solid	Perfluoropentanesulfonic acid
537 IDA	EPA 537 (Mod)	Solid	Perfluoropentanoic acid
537 IDA	EPA 537 (Mod)	Solid	Perfluorotetradecanoic acid
537 IDA	EPA 537 (Mod)	Solid	Perfluorotridecanoic acid
537 IDA	EPA 537 (Mod)	Solid	Perfluoroundecanoic acid
Moisture		Solid	Percent Moisture
Moisture		Solid	Percent Solids

# Method Summary

Client: Eurofins Eaton Analytical  
Project/Site: PFAS

Job ID: 410-38187-1

Method	Method Description	Protocol	Laboratory
537 IDA	EPA 537 Isotope Dilution	EPA	ELLE
Moisture	Percent Moisture	EPA	ELLE
EPA 537 (Mod)	EPA 537 Isotope Dilution	EPA	ELLE
Extract Aliquot	Preparation, Extract Aliquot	None	ELLE

## Protocol References:

EPA = US Environmental Protection Agency  
None = None

## Laboratory References:

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

# Sample Summary

Client: Eurofins Eaton Analytical  
Project/Site: PFAS

Job ID: 410-38187-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
410-38187-1	AH60451 Biosolids	Solid	04/28/21 06:10	05/04/21 10:27	

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



410-38187 Chain of Custody

110 S. Hill Street  
South Bend, IN 46617  
T: 1.800.332.4345  
F: 1.574.233.8207

Order #

Batch #

[www.EurofinsUS.com/Eaton](http://www.EurofinsUS.com/Eaton)

Shaded area for EEA use only

## CHAIN OF CUSTODY RECORD

Page 1 of 1

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Sample analysis will be provided according to the standard EEA Water Services Terms, which are available upon request. Any other terms proposed by Customer are deemed material alterations and are rejected unless expressly agreed to in writing by EEA.

WOLFF POC 13308 U.V. Effective Date: 2010-09-20

(3) 4466-2-5/4/2/1027

5/13/2021

## Login Sample Receipt Checklist

Client: Eurofins Eaton Analytical

Job Number: 410-38187-1

Login Number: 38187

List Source: Eurofins Lancaster Laboratories Env

List Number: 1

Creator: Rivera, Tatiana

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



## CHAIN OF CUSTODY RECORD

Page 1 of 1

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[illegible]

RELINQUISHED BY:(Signature)		DATE	TIME	RECEIVED BY:(Signature)		DATE	TIME
			AM   PM				AM   PM
RELINQUISHED BY:(Signature)		DATE	TIME	RECEIVED BY:(Signature)		DATE	TIME
			AM   PM				AM   PM
RELINQUISHED BY:(Signature)		DATE	TIME	RECEIVED FOR LABORATORY BY:		DATE	TIME
Cindy Lamb		04/29/21	13:45	Riley Pearson		04-30 2021	0940
CONDITIONS UPON RECEIPT (check one): <input checked="" type="checkbox"/> Fed. Wet/Bleu      Ambient _____ °C Upon Receipt _____							
LAB COMMENTS							
LAB RESERVES THE RIGHT TO RETURN UNUSED PORTIONS OF NON-AQUEOUS SAMPLES TO CLIENT							

MATRIX CODES:	TURN-AROUND TIME (TAT) - SURCHARGES			
DW-DRINKING WATER	SW = Standard Written: (15 working days)	0%	IV* = Immediate Verbal: (3 working days)	100%
RW-REAGENT WATER	RV* = Rush Verbal: (5 working days)	50%	IW* =Immediate Written: (3 working days)	125%
GW-GROUND WATER	RW* = Rush Written: (5 working days)	75%	SP* = Weekend, Holiday	CALL
EW-EXPOSURE WATER			STAT* = Less than 48 hours	CALL
SW-SURFACE WATER				
PW-POOL WATER				
WW-WASTE WATER				

\* Please call, expedited service not available for all testing

06/10/2016 10:56:00 Effective Date: 2016-09-20