

Environment Testing America

ANALYTICAL REPORT

Eurofins Eaton South Bend 110 S Hill Street South Bend, IN 46617 Tel: (574)233-4777

Laboratory Job ID: 810-17138-1

Client Project/Site: Ann Arbor L402, RD200

For:

Ann Arbor Water Treatment Plant 919 Sunset Road Ann Arbor, Michigan 48103

Attn: Jim Bahen

Graci Callo

Authorized for release by: 3/23/2022 3:10:53 PM

Traci Chlebowski, Project Manager (574)233-4777

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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.

Client: Ann Arbor Water Treatment Plant Project/Site: Ann Arbor L402, RD200 Laboratory Job ID: 810-17138-1

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Definitions/Glossary

Client: Ann Arbor Water Treatment Plant Project/Site: Ann Arbor L402, RD200

Practical Quantitation Limit

Relative Error Ratio (Radiochemistry)

Toxicity Equivalent Factor (Dioxin)
Toxicity Equivalent Quotient (Dioxin)

Too Numerous To Count

Reporting Limit or Requested Limit (Radiochemistry)

Relative Percent Difference, a measure of the relative difference between two points

Presumptive

Quality Control

Job ID: 810-17138-1

Glossary

PQL

QC

RER

RL RPD

TEF

TEQ TNTC

PRES

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	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

Case Narrative

Client: Ann Arbor Water Treatment Plant Project/Site: Ann Arbor L402, RD200

Job ID: 810-17138-1

Job ID: 810-17138-1

Laboratory: Eurofins Eaton South Bend

Narrative

Job Narrative 810-17138-1

Comments

No additional comments.

Receipt

The sample was received on 3/9/2022 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 3.0° C.

Method 537 (modified): The recovery for the labeled isotope(s) in the following sample: Al49573 Biosolids (810-17138-1) 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.

The sample injection standard peak areas in the following sample: Al49573 Biosolids (810-17138-1) 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: Ann Arbor Water Treatment Plant Project/Site: Ann Arbor L402, RD200

Job ID: 810-17138-1

Client Sample ID: Al49573 Biosolids

PWSID Number: MI0000220

No Detections.

Lab Sample ID: 810-17138-1

Client Sample Results

Client: Ann Arbor Water Treatment Plant Project/Site: Ann Arbor L402, RD200

Lab Sample ID: 810-17138-1

Matrix: Solid

Job ID: 810-17138-1

PWSID Number: MI0000220

Date Collected: 03/07/22 06:10 Date Received: 03/09/22 09:15

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11CI-PF3OUdS	<0.30		0.30	ug/Kg		03/16/22 10:25	03/17/22 17:49	1
4:2 Fluorotelomer sulfonic acid	<1.0		1.0	ug/Kg		03/16/22 10:25	03/17/22 17:49	1
6:2 Fluorotelomer sulfonic acid	<1.0		1.0	ug/Kg		03/16/22 10:25	03/17/22 17:49	1
8:2 Fluorotelomer sulfonic acid	<1.5		1.5	ug/Kg		03/16/22 10:25	03/17/22 17:49	1
9CI-PF3ONS	<1.0		1.0	ug/Kg		03/16/22 10:25	03/17/22 17:49	1
DONA	<1.5		1.5	ug/Kg		03/16/22 10:25	03/17/22 17:49	1
HFPODA	<1.0		1.0	ug/Kg		03/16/22 10:25	03/17/22 17:49	1
NEtFOSAA	<1.0		1.0	ug/Kg		03/16/22 10:25	03/17/22 17:49	1
NMeFOSAA	<1.0		1.0	ug/Kg		03/16/22 10:25	03/17/22 17:49	1
Perfluorobutanesulfonic acid	<1.0		1.0	ug/Kg		03/16/22 10:25	03/17/22 17:49	1
Perfluorobutanoic acid	<1.0		1.0	ug/Kg		03/16/22 10:25	03/17/22 17:49	1
Perfluorodecanesulfonic acid	<0.30		0.30	ug/Kg		03/16/22 10:25	03/17/22 17:49	1
Perfluorodecanoic acid	<0.30		0.30	ug/Kg		03/16/22 10:25	03/17/22 17:49	1
Perfluorododecanoic acid	< 0.30		0.30	ug/Kg		03/16/22 10:25	03/17/22 17:49	1
Perfluoroheptanesulfonic acid	< 0.30		0.30	ug/Kg		03/16/22 10:25	03/17/22 17:49	1
Perfluoroheptanoic acid	<0.30		0.30	ug/Kg		03/16/22 10:25	03/17/22 17:49	1
Perfluorohexanesulfonic acid	< 0.30		0.30	ug/Kg		03/16/22 10:25	03/17/22 17:49	1
Perfluorohexanoic acid	<0.30		0.30	ug/Kg		03/16/22 10:25	03/17/22 17:49	1
Perfluorononanesulfonic acid	<0.30		0.30	ug/Kg		03/16/22 10:25	03/17/22 17:49	1
Perfluorononanoic acid	<0.30		0.30	ug/Kg		03/16/22 10:25	03/17/22 17:49	1
Perfluorooctadecanoic acid	< 0.30		0.30	ug/Kg		03/16/22 10:25	03/17/22 17:49	1
Perfluorooctanesulfonamide	<0.30		0.30	ug/Kg		03/16/22 10:25	03/17/22 17:49	1
Perfluorooctanesulfonic acid	< 0.30		0.30	ug/Kg		03/16/22 10:25	03/17/22 17:49	1
Perfluorooctanoic acid	<0.30		0.30	ug/Kg		03/16/22 10:25	03/17/22 17:49	1
Perfluoropentanesulfonic acid	<0.30		0.30	ug/Kg		03/16/22 10:25	03/17/22 17:49	1
Perfluoropentanoic acid	< 0.30		0.30	ug/Kg		03/16/22 10:25	03/17/22 17:49	1
Perfluorotetradecanoic acid	< 0.30		0.30	ug/Kg		03/16/22 10:25	03/17/22 17:49	1
Perfluorotridecanoic acid	<0.30		0.30	ug/Kg		03/16/22 10:25	03/17/22 17:49	1
Perfluoroundecanoic acid	< 0.30		0.30	ug/Kg		03/16/22 10:25	03/17/22 17:49	1
Isotope Dilution	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
d3-NMeFOSAA	97	<u> </u>	10 - 178				03/17/22 17:49	
d5-NEtFOSAA	107		10 - 193			03/16/22 10:25	03/17/22 17:49	1
M2-4:2 FTS	128		10 - 200			03/16/22 10:25	03/17/22 17:49	1
M2-6:2 FTS	146		10 - 200			03/16/22 10:25	03/17/22 17:49	1
M2-8:2 FTS	126		15 - 200				03/17/22 17:49	1
13C3 HFPO-DA	97		10 - 169			03/16/22 10:25	03/17/22 17:49	1

Isotope Dilution Summary

Client: Ann Arbor Water Treatment Plant Project/Site: Ann Arbor L402, RD200

Job ID: 810-17138-1

Method: 537 IDA - EPA 537 Isotope Dilution

Matrix: Solid Prep Type: Total/NA

	DETD A							
	PFTDA	PFDoDA	C3PFBS	C3PFHS	PFBA	C4PFHA	13C5PHA	PFPeA
Client Sample ID	(10-169)	(11-166)	(27-179)	(24-171)	(28-153)	(10-178)	(10-174)	(24-161)
Al49573 Biosolids								
Lab Control Sample	95	95	109	96	104	100	98	110
Lab Control Sample Dup	92	88	104	95	101	96	91	107
Method Blank	94	102	104	95	101	102	92	103
		Perce	ent Isotope	Dilution Re	covery (Ac	ceptance L	.imits)	
	C6PFDA	13C7PUA	PFOSA	C8PFOA	C8PFOS	C9PFNA	d3NMFOS	d5NEFOS
Client Sample ID	(26-161)	(12-173)	(14-163)	(26-159)	(41-154)	(26-165)	(10-178)	(10-193)
Al49573 Biosolids							97	107
Lab Control Sample	98	95	106	94	98	99	120	110
Lab Control Sample Dup	96	96	108	97	100	95	112	109
Method Blank	100	106	114	95	99	93	113	134
		Perce	ent Isotope	Dilution Re	covery (Ac	ceptance L	.imits)	
	M242FTS	M262FTS	M282FTS	HFPODA				
Client Sample ID	(10-200)	(10-200)	(15-200)	(10-169)				
Al49573 Biosolids	128	146	126	97				
Lab Control Sample	123	111	111	98				
Lab Control Sample Dup	116	106	113	104				
Method Blank	126	113	111	113				
	Lab Control Sample Lab Control Sample Dup Method Blank Client Sample ID Al49573 Biosolids Lab Control Sample Lab Control Sample Dup Method Blank Client Sample ID Al49573 Biosolids Lab Control Sample Lab Control Sample	Lab Control Sample 95 Lab Control Sample Dup 92 Method Blank 94 Client Sample ID (26-161) Al49573 Biosolids 98 Lab Control Sample Dup 96 Method Blank 100 M242FTS (10-200) Al49573 Biosolids 128 Lab Control Sample 123 Lab Control Sample Dup 116	Lab Control Sample 95 95 Lab Control Sample Dup 92 88 Method Blank 94 102 Perce C6PFDA 13C7PUA Client Sample ID (26-161) (12-173) Al49573 Biosolids 98 95 Lab Control Sample Dup 96 96 Method Blank 100 106 Perce M242FTS M262FTS Client Sample ID (10-200) (10-200) Al49573 Biosolids 128 146 Lab Control Sample Dup 116 106	Lab Control Sample 95 95 109 Lab Control Sample Dup 92 88 104 Method Blank 94 102 104 Percum Isotope C6PFDA 13C7PUA PFOSA Client Sample ID (26-161) (12-173) (14-163) Al49573 Biosolids 98 95 106 Lab Control Sample Dup 96 96 108 Method Blank 100 106 114 Percur Isotope M242FTS M262FTS M282FTS Client Sample ID (10-200) (10-200) (15-200) Al49573 Biosolids 128 146 126 Lab Control Sample Dup 116 106 113	Lab Control Sample 95 95 109 96 Lab Control Sample Dup 92 88 104 95 Method Blank 94 102 104 95 Percent Isotope Dilution Region C6PFDA 13C7PUA PFOSA C8PFOA C8PFOA Client Sample ID (26-161) (12-173) (14-163) (26-159) Al49573 Biosolids 98 95 106 94 Lab Control Sample Dup 96 96 108 97 Method Blank 100 106 114 95 Percent Isotope Dilution Region M242FTS M262FTS M282FTS HFPODA Client Sample ID (10-200) (10-200) (15-200) (10-169) Al49573 Biosolids 128 146 126 97 Lab Control Sample 123 111 111 98 Lab Control Sample Dup 116 106 113 104	Lab Control Sample 95 95 109 96 104 Lab Control Sample Dup 92 88 104 95 101 Method Blank Percent Isotope Dilution Recovery (Accepted Process) C6PFDA 13C7PUA PFOSA C8PFOA C8PFOS C8PFOS C8PFOS (26-159) C8PFOS	Lab Control Sample 95 95 109 96 104 100 Lab Control Sample Dup 92 88 104 95 101 96 Method Blank 94 102 104 95 101 102 Percent Isotope Dilution Recovery (Acceptance Legent Isotope Dilution Recovery (Acceptance Legent Isotope) Client Sample ID (26-161) (12-173) (14-163) (26-159) (41-154) (26-165) Al49573 Biosolids 98 95 106 94 98 99 Lab Control Sample Dup 96 96 108 97 100 95 Method Blank 100 106 114 95 99 93 Percent Isotope Dilution Recovery (Acceptance Legent Isotope Dilution Recovery (Lab Control Sample 95 95 109 96 104 100 98 Lab Control Sample Dup 92 88 104 95 101 96 91 Method Blank 94 102 104 95 101 102 92 Client Sample ID (26-161) (12-173) PFOSA C8PFOX C9PFOX C9PFOX <th< td=""></th<>

PFTDA = 13C2 PFTeDA

PFDoDA = 13C2-PFDoDA

C3PFBS = 13C3 PFBS

C3PFHS = 13C3 PFHxS

PFBA = 13C4 PFBA

C4PFHA = 13C4 PFHpA

13C5PHA = 13C5 PFHxA

PFPeA = 13C5 PFPeA

C6PFDA = 13C6 PFDA

13C7PUA = 13C7 PFUnA

PFOSA = 13C8 FOSA

C8PFOA = 13C8 PFOA

C8PFOS = 13C8 PFOS

C9PFNA = 13C9 PFNA

d3NMFOS = d3-NMeFOSAA

d5NEFOS = d5-NEtFOSAA

M242FTS = M2-4:2 FTS

M262FTS = M2-6:2 FTS

M282FTS = M2-8:2 FTS

HFPODA = 13C3 HFPO-DA

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Client: Ann Arbor Water Treatment Plant Project/Site: Ann Arbor L402, RD200

Job ID: 810-17138-1

Method: 537 IDA - EPA 537 Isotope Dilution

Lab Sample ID: MB 410-234200/1-B

Matrix: Solid

Analysis Batch: 234659

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 234200

7, C.C C . C . C . C . C . C . C	MB	МВ						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
11CI-PF3OUdS	<0.30		0.30	ug/Kg	$\overline{0}$	3/16/22 10:25	03/17/22 15:13	1
4:2 Fluorotelomer sulfonic acid	<1.0		1.0	ug/Kg	0	3/16/22 10:25	03/17/22 15:13	1
6:2 Fluorotelomer sulfonic acid	<1.0		1.0	ug/Kg	0	3/16/22 10:25	03/17/22 15:13	1
8:2 Fluorotelomer sulfonic acid	<1.5		1.5	ug/Kg	0	3/16/22 10:25	03/17/22 15:13	1
9CI-PF3ONS	<1.0		1.0	ug/Kg	0	3/16/22 10:25	03/17/22 15:13	1
DONA	<1.5		1.5	ug/Kg	0	3/16/22 10:25	03/17/22 15:13	1
HFPODA	<1.0		1.0	ug/Kg	0	3/16/22 10:25	03/17/22 15:13	1
NEtFOSAA	<1.0		1.0	ug/Kg	0	3/16/22 10:25	03/17/22 15:13	1
NMeFOSAA	<1.0		1.0	ug/Kg	0	3/16/22 10:25	03/17/22 15:13	1
Perfluorobutanesulfonic acid	<1.0		1.0	ug/Kg	0	3/16/22 10:25	03/17/22 15:13	1
Perfluorobutanoic acid	<1.0		1.0	ug/Kg	0	3/16/22 10:25	03/17/22 15:13	1
Perfluorodecanesulfonic acid	<0.30		0.30	ug/Kg	0	3/16/22 10:25	03/17/22 15:13	1
Perfluorodecanoic acid	<0.30		0.30	ug/Kg	0	3/16/22 10:25	03/17/22 15:13	1
Perfluorododecanoic acid	<0.30		0.30	ug/Kg	0	3/16/22 10:25	03/17/22 15:13	1
Perfluoroheptanesulfonic acid	<0.30		0.30	ug/Kg	0	3/16/22 10:25	03/17/22 15:13	1
Perfluoroheptanoic acid	<0.30		0.30	ug/Kg	0	3/16/22 10:25	03/17/22 15:13	1
Perfluorohexanesulfonic acid	<0.30		0.30	ug/Kg	0	3/16/22 10:25	03/17/22 15:13	1
Perfluorohexanoic acid	< 0.30		0.30	ug/Kg	0	3/16/22 10:25	03/17/22 15:13	1
Perfluorononanesulfonic acid	<0.30		0.30	ug/Kg	0	3/16/22 10:25	03/17/22 15:13	1
Perfluorononanoic acid	<0.30		0.30	ug/Kg	0	3/16/22 10:25	03/17/22 15:13	1
Perfluorooctadecanoic acid	< 0.30		0.30	ug/Kg	0	3/16/22 10:25	03/17/22 15:13	1
Perfluorooctanesulfonamide	<0.30		0.30	ug/Kg	0	3/16/22 10:25	03/17/22 15:13	1
Perfluorooctanesulfonic acid	<0.30		0.30	ug/Kg	0	3/16/22 10:25	03/17/22 15:13	1
Perfluorooctanoic acid	< 0.30		0.30	ug/Kg	0	3/16/22 10:25	03/17/22 15:13	1
Perfluoropentanesulfonic acid	<0.30		0.30	ug/Kg	0	3/16/22 10:25	03/17/22 15:13	1
Perfluoropentanoic acid	<0.30		0.30	ug/Kg	0	3/16/22 10:25	03/17/22 15:13	1
Perfluorotetradecanoic acid	< 0.30		0.30	ug/Kg	0	3/16/22 10:25	03/17/22 15:13	1
Perfluorotridecanoic acid	<0.30		0.30	ug/Kg	0	3/16/22 10:25	03/17/22 15:13	1
Perfluoroundecanoic acid	< 0.30		0.30	ug/Kg	0	3/16/22 10:25	03/17/22 15:13	1
	MB	MB						
	0/5	0 ""	,					

Lab Sample ID: LCS 410-234200/2-B

Matrix: Solid

13C3 HFPO-DA

Isotope Dilution

d3-NMeFOSAA

d5-NEtFOSAA

M2-4:2 FTS

M2-6:2 FTS

M2-8:2 FTS

Analysis Batch: 234659

Client S	Sample	ID:	Lab	Contro	I Sample
			Prep	Type:	Total/NA

03/16/22 10:25 03/17/22 15:13

03/16/22 10:25 03/17/22 15:13

03/16/22 10:25 03/17/22 15:13

03/16/22 10:25 03/17/22 15:13

03/16/22 10:25 03/17/22 15:13

03/16/22 10:25 03/17/22 15:13

Prepared

Prep Batch: 234200

Analyzed

Dil Fac

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
10:2 FTS	24.1	26.2		ug/Kg		109	46 - 143	
11CI-PF3OUdS	23.3	24.1		ug/Kg		104	55 - 135	
4:2 Fluorotelomer sulfonic acid	23.4	23.1		ug/Kg		99	58 - 131	
6:2 Fluorotelomer sulfonic acid	23.7	23.1		ug/Kg		97	59 - 135	
8:2 Fluorotelomer sulfonic acid	24.0	24.7		ug/Kg		103	55 - 133	
9CI-PF3ONS	23.3	26.0		ug/Kg		112	62 - 130	

Limits

10 - 178

10 - 193

10 - 200

10 - 200

15 - 200

10 - 169

%Recovery Qualifier

113

134

126

113

111

113

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Client: Ann Arbor Water Treatment Plant Project/Site: Ann Arbor L402, RD200

Job ID: 810-17138-1

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

Lab Sample ID: LCS 410-234200/2-B

Matrix: Solid

Analysis Batch: 234659

Client Sample ID: Lab Control Sample

Prep Type: Total/NA Prep Batch: 234200

	Spike		LCS		_	2/5	%Rec.	
Analyte	Added		Qualifier	Unit	D	%Rec	Limits	
DONA	23.6	24.3		ug/Kg		103	57 - 137	
HFPODA	25.0	28.2		ug/Kg		113	49 - 135	
NEtFOSAA	25.0	25.4		ug/Kg		102	57 - 127	
NMeFOSAA	25.0	23.4		ug/Kg		93	60 - 134	
Perfluorobutanesulfonic acid	22.1	24.3		ug/Kg		110	54 - 130	
Perfluorobutanoic acid	25.0	25.0		ug/Kg		100	60 - 128	
Perfluorodecanesulfonic acid	24.1	24.6		ug/Kg		102	57 - 132	
Perfluorodecanoic acid	25.0	27.3		ug/Kg		109	56 - 133	
Perfluorododecanesulfonic acid (PFDoS)	24.2	24.1		ug/Kg		100	38 - 145	
Perfluorododecanoic acid	25.0	28.8		ug/Kg		115	60 - 135	
Perfluoroheptanesulfonic acid	23.8	24.2		ug/Kg		102	59 - 132	
Perfluoroheptanoic acid	25.0	26.1		ug/Kg		104	59 - 137	
Perfluorohexadecanoic acid	25.0	27.5		ug/Kg		110	38 - 147	
Perfluorohexanesulfonic acid	22.8	24.7		ug/Kg		108	59 - 129	
Perfluorohexanoic acid	25.0	27.2		ug/Kg		109	59 - 132	
Perfluorononanesulfonic acid	24.0	24.3		ug/Kg		101	60 - 132	
Perfluorononanoic acid	25.0	26.4		ug/Kg		106	61 - 134	
Perfluorooctadecanoic acid	25.0	26.9		ug/Kg		108	16 - 160	
Perfluorooctanesulfonamide	25.0	25.3		ug/Kg		101	47 - 149	
Perfluorooctanesulfonic acid	23.1	25.2		ug/Kg		109	61 - 126	
Perfluorooctanoic acid	25.0	27.2		ug/Kg		109	59 - 131	
Perfluoropentanesulfonic acid	23.5	25.2		ug/Kg		107	57 - 133	
Perfluoropentanoic acid	25.0	23.8		ug/Kg		95	58 - 134	
Perfluorotetradecanoic acid	25.0	27.9		ug/Kg		112	62 - 134	
Perfluorotridecanoic acid	25.0	27.9		ug/Kg		112	53 - 143	
Perfluoroundecanoic acid	25.0	28.6		ug/Kg		114	60 - 134	

CS LCS

	LCS	LCS	
Isotope Dilution	%Recovery	Qualifier	Limits
13C2 PFTeDA	95		10 - 169
13C2-PFDoDA	95		11 - 166
13C3 PFBS	109		27 - 179
13C3 PFHxS	96		24 - 171
13C4 PFBA	104		28 - 153
13C4 PFHpA	100		10 - 178
13C5 PFHxA	98		10 - 174
13C5 PFPeA	110		24 - 161
13C6 PFDA	98		26 - 161
13C7 PFUnA	95		12 - 173
13C8 FOSA	106		14 - 163
13C8 PFOA	94		26 - 159
13C8 PFOS	98		41 - 154
13C9 PFNA	99		26 - 165
d3-NMeFOSAA	120		10 - 178
d5-NEtFOSAA	110		10 - 193
M2-4:2 FTS	123		10 - 200
M2-6:2 FTS	111		10 - 200
M2-8:2 FTS	111		15 - 200
13C3 HFPO-DA	98		10 - 169

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3

5

7

0

10

12

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QC Sample Results

Client: Ann Arbor Water Treatment Plant Project/Site: Ann Arbor L402, RD200

Job ID: 810-17138-1

Method: 537 IDA - EPA 537 Isotope Dilution

Lab Sample ID: LCSD 410-234200/3-B Client Sample ID: Lab Control Sample Dup

Matrix: Solid

13C9 PFNA

Analysis Batch: 234659

Prep Batch: 234200

Analysis Batch: 234659							Prep Ba	itcn: 23	
Analysis	Spike Added	_	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Analyte 10:2 FTS	Added	24.1	Qualifier			100	46 - 143	- RPD 8	30
11CI-PF3OUdS	23.3	24.1		ug/Kg			46 - 143 55 ₋ 135		30
4:2 Fluorotelomer sulfonic acid	23.3 23.4	24.0		ug/Kg		106 104	58 - 131	2 5	30
				ug/Kg				 3	
6:2 Fluorotelomer sulfonic acid	23.7	23.9 22.7		ug/Kg		101 95	59 ₋ 135 55 ₋ 133	-	30 30
8:2 Fluorotelomer sulfonic acid	24.0			ug/Kg				8	
9CI-PF3ONS	23.3	25.7		ug/Kg		110	62 - 130		30
DONA	23.6	25.0		ug/Kg		106	57 ₋ 137	3	30
HFPODA	25.0	25.2		ug/Kg		101	49 - 135	11	30
NEtFOSAA	25.0	23.9		ug/Kg		96	57 - 127	6	30
NMeFOSAA	25.0	25.4		ug/Kg		102	60 - 134	8	30
Perfluorobutanesulfonic acid	22.1	23.9		ug/Kg		108	54 - 130	1	30
Perfluorobutanoic acid	25.0	25.0		ug/Kg		100	60 - 128		30
Perfluorodecanesulfonic acid	24.1	22.6		ug/Kg		94	57 - 132	8	30
Perfluorodecanoic acid	25.0	27.6		ug/Kg		110	56 - 133	1	30
Perfluorododecanesulfonic acid (PFDoS)	24.2	24.1		ug/Kg		100	38 - 145	0	30
Perfluorododecanoic acid	25.0	28.8		ug/Kg		115	60 - 135	0	30
Perfluoroheptanesulfonic acid	23.8	25.3		ug/Kg		106	59 - 132	5	30
Perfluoroheptanoic acid	25.0	26.7		ug/Kg		107	59 - 137	2	30
Perfluorohexadecanoic acid	25.0	28.3		ug/Kg		113	38 - 147	3	30
Perfluorohexanesulfonic acid	22.8	24.5		ug/Kg		107	59 - 129	1	30
Perfluorohexanoic acid	25.0	28.1		ug/Kg		112	59 - 132	3	30
Perfluorononanesulfonic acid	24.0	24.1		ug/Kg		100	60 - 132	1	30
Perfluorononanoic acid	25.0	26.4		ug/Kg		106	61 - 134	0	30
Perfluorooctadecanoic acid	25.0	27.9		ug/Kg		112	16 - 160	4	30
Perfluorooctanesulfonamide	25.0	24.2		ug/Kg		97	47 - 149	4	30
Perfluorooctanesulfonic acid	23.1	25.0		ug/Kg		108	61 - 126	1	30
Perfluorooctanoic acid	25.0	27.6		ug/Kg		110	59 - 131	2	30
Perfluoropentanesulfonic acid	23.5	25.6		ug/Kg		109	57 - 133	1	30
Perfluoropentanoic acid	25.0	23.6		ug/Kg		94	58 - 134	1	30
Perfluorotetradecanoic acid	25.0	28.2		ug/Kg		113	62 - 134	1	30
Perfluorotridecanoic acid	25.0	28.8		ug/Kg		115	53 - 143	3	30
Perfluoroundecanoic acid	25.0	25.8		ug/Kg		103	60 - 134	10	30

	LCSD	LCSD	
Isotope Dilution	%Recovery	Qualifier	Limits
13C2 PFTeDA	92		10 - 169
13C2-PFDoDA	88		11 - 166
13C3 PFBS	104		27 - 179
13C3 PFHxS	95		24 - 171
13C4 PFBA	101		28 - 153
13C4 PFHpA	96		10 - 178
13C5 PFHxA	91		10 - 174
13C5 PFPeA	107		24 - 161
13C6 PFDA	96		26 - 161
13C7 PFUnA	96		12 - 173
13C8 FOSA	108		14 - 163
13C8 PFOA	97		26 - 159
13C8 PFOS	100		41 - 154

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Eurofins Eaton South Bend

3/23/2022

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QC Sample Results

Client: Ann Arbor Water Treatment Plant Job ID: 810-17138-1 Project/Site: Ann Arbor L402, RD200

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

Lab Sample ID: LCSD 410-234200/3-B **Client Sample ID: Lab Control Sample Dup** Matrix: Solid Prep Type: Total/NA **Analysis Batch: 234659**

Prep Batch: 234200

	LCSD	LCSD	
Isotope Dilution	%Recovery	Qualifier	Limits
d3-NMeFOSAA	112		10 - 178
d5-NEtFOSAA	109		10 - 193
M2-4:2 FTS	116		10 - 200
M2-6:2 FTS	106		10 - 200
M2-8:2 FTS	113		15 - 200
13C3 HFPO-DA	104		10 - 169

QC Association Summary

Client: Ann Arbor Water Treatment Plant Project/Site: Ann Arbor L402, RD200

Job ID: 810-17138-1

LCMS

Prep Batch: 234200

Lab Sample	ID Client Sample ID	Prep Type	Matrix	Method	Prep Batch
810-17138-1	Al49573 Biosolids	Total/NA	Solid	T-WI-12031r10	
MB 410-234	200/1-B Method Blank	Total/NA	Solid	T-WI-12031r10	
LCS 410-234	Lab Control Sample	Total/NA	Solid	T-WI-12031r10	
LCSD 410-2	34200/3-B Lab Control Sample Dup	Total/NA	Solid	T-WI-12031r10	

Cleanup Batch: 234471

Lab Sample ID 810-17138-1	Client Sample ID Al49573 Biosolids	Prep Type Total/NA	Matrix Solid	Method Extract Aliquot	Prep Batch 234200
MB 410-234200/1-B	Method Blank	Total/NA	Solid	Extract Aliquot	234200
LCS 410-234200/2-B	Lab Control Sample	Total/NA	Solid	Extract Aliquot	234200
LCSD 410-234200/3-B	Lab Control Sample Dup	Total/NA	Solid	Extract Aliquot	234200

Analysis Batch: 234659

Lab Sample ID 810-17138-1	Client Sample ID Al49573 Biosolids	Prep Type Total/NA	Matrix Solid	Method 537 IDA	Prep Batch 234471
MB 410-234200/1-B	Method Blank	Total/NA	Solid	537 IDA	234471
LCS 410-234200/2-B	Lab Control Sample	Total/NA	Solid	537 IDA	234471
LCSD 410-234200/3-B	Lab Control Sample Dup	Total/NA	Solid	537 IDA	234471

Analysis Batch: 235154

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
810-17138-1	Al49573 Biosolids	Total/NA	Solid	537 IDA	234471

Lab Chronicle

Client: Ann Arbor Water Treatment Plant Project/Site: Ann Arbor L402, RD200

Client Sample ID: Al49573 Biosolids

Lab Sample ID: 810-17138-1 Date Collected: 03/07/22 06:10 **Matrix: Solid**

Date Received: 03/09/22 09:15

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	T-WI-12031r10			234200	03/16/22 10:25	D5VP	ELLE
Total/NA	Cleanup	Extract Aliquot			234471	03/16/22 21:19	D5VP	ELLE
Total/NA	Analysis	537 IDA		1	234659	03/17/22 17:49	I5JH	ELLE
Total/NA	Prep	T-WI-12031r10			234200	03/16/22 10:25	D5VP	ELLE
Total/NA	Cleanup	Extract Aliquot			234471	03/16/22 21:19	D5VP	ELLE
Total/NA	Analysis	537 IDA		1	235154	03/18/22 15:09	PY4D	ELLE

Laboratory References:

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

Eurofins Eaton South Bend

Job ID: 810-17138-1

Accreditation/Certification Summary

Client: Ann Arbor Water Treatment Plant Project/Site: Ann Arbor L402, RD200

Job ID: 810-17138-1

Laboratory: Eurofins Lancaster Laboratories Env, LLC

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

Authority	Program	Identification Number	Expiration Date
A2LA	Dept. of Defense ELAP	1.01	11-30-22
A2LA	ISO/IEC 17025	0001.01	11-30-22
Alaska	State	PA00009	06-30-22
Alaska (UST)	State	17-027	02-28-23
Arizona	State	AZ0780	03-12-23
Arkansas DEQ	State	88-0660	08-10-22
California	State	2792	02-02-22 *
Colorado	State	PA00009	06-30-22
Connecticut	State	PH-0746	06-30-23
DE Haz. Subst. Cleanup Act (HSCA)	State	019-006 (PA cert)	01-31-23
Delaware (DW)	State	N/A	01-31-23
Florida	NELAP	E87997	06-30-22
Georgia (DW)	State	C048	01-31-22 *
Hawaii	State	N/A	01-31-23
Illinois	NELAP	200027	01-31-23
lowa	State	361	03-02-22 *
Kansas	NELAP	E-10151	10-31-22
Kentucky (DW)	State	KY90088	12-31-22
Kentucky (UST)	State	1.01	11-30-22
Kentucky (WW)	State	KY90088	01-01-23
Louisiana	NELAP	02055	06-30-22
Maine	State	2019012	03-12-23
Maryland	State	100	06-30-22
Massachusetts	State	M-PA009	06-30-22
Minnesete	State	9930	01-31-23
Minnesota	NELAP State	042-999-487 450	12-31-22
Missouri	State		01-31-25
Montana (DW)	State	0098	01-01-23
Montana (UST)	State	<cert no.=""></cert>	02-01-23
Nebraska	State	NE-OS-32-17	01-31-23
New Hampshire	NELAP	2730	01-10-23
New Jersey	NELAP	PA011	06-30-22
New York	NELAP	10670	04-01-22
North Carolina (DW)	State	42705	07-31-22
North Carolina (WW/SW)	State	521	12-31-22
North Dakota	State	R-205	01-31-23
Oklahoma	NELAP	R-205	08-31-22
Oregon	NELAP	PA200001	09-11-22
PALA	Canada	1978	09-16-24
Pennsylvania	NELAP	36-00037	01-31-23
Rhode Island	State	LAO00338	12-30-22
South Carolina	State	89002	01-31-23
Tennessee	State	02838	01-31-22 *
Texas	NELAP	T104704194-21-40	08-31-22
Vermont	State	VT - 36037	10-28-22
Virginia	NELAP	460182	06-14-22
Washington	State	C457	04-12-22
West Virginia (DW)	State	9906 C	12-31-22
West Virginia DEP	State	055	04-30-22
Wyoming	State	8TMS-L	01-31-23

^{*} Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: Ann Arbor Water Treatment Plant Project/Site: Ann Arbor L402, RD200

Job ID: 810-17138-1

Laboratory: Eurofins Lancaster Laboratories Env, LLC (Continued)

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

Authority	Program	Identification Number	Expiration Date
Wyoming (UST)	A2LA	1.01	11-30-22

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Method Summary

Client: Ann Arbor Water Treatment Plant Project/Site: Ann Arbor L402, RD200

Job ID: 810-17138-1

Method	Method Description	Protocol	Laboratory
537 IDA	EPA 537 Isotope Dilution	EPA	ELLE
Extract Aliquot	Preparation, Extract Aliquot	None	ELLE
T-WI-12031r10	SOP(00037) T-PFAS-WI12031 Rev. 10	ELLE - Lancaster	ELLE

Protocol References:

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

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: Ann Arbor Water Treatment Plant Project/Site: Ann Arbor L402, RD200

Job ID: 810-17138-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	PWSID Number
810-17138-1	Al49573 Biosolids	Solid	03/07/22 06:10	03/09/22 09:15	MI0000220

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South Bend, IN

110 S Hill Street

South Bend, IN 46617

Chain of Custody Record



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Phone: 574-233-4777 Fax: 574-233-8207																3 3528	
Client Information (Sub Contract Lab)	Sampler:			Lab PM Chleb		d, Tra	nci					er Tracking	No(s):		COC No: 810-2340.1	1.2	
Client Contact: Shipping/Receiving	Phone:			E-Mail: traci.c								of Origin: nigan			Page: Page 1 of 1	11.12	
Company: Eurofins Lancaster Laboratories Env, LLC							s Requir chigan		e note):						Job #: 810-17138-1	4.7	
Address: 2425 New Holland Pike,	Due Date Requested 3/22/2022	l:							Anal	ysis R	eques	sted			Preservation Cod A - HCL	des: M - Hexane	
City: Lancaster State, Zip: PA, 17601	TAT Requested (day	s):			STATE OF THE PARTY	AS List									B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH	N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3	
Phone: 717-656-2300(Tel) Email:	PO #:				or No)	100) 28 PF			ŀ						G - Amchlor H - Ascorbic Acid I - Ica J - DI Water	S - H2SO4 T - TSP Dodec U - Acetone V - MCAA	ate
Project Name: Ann Arbor L402, RD200	Project #: 81000530				Yes or No)	Prep (A								containers	K - EDTA L - EDA	W - pH 4-5 Z - other (spec	
Site:	SSOW#:				ered Sample (MS/MSD (Yes	BloSo								क	Other:		
		Sample	Туре	Matrix (w=water, 8=solid, =waste/oil,	Field Filtered	PFC_IDA/PFC_BioSol_Prep (MOD) 28 PFAS List								Total Number			
Sample Identification - Client ID (Lab ID)	Sample Date	Time	G=grab) at-	Tissue, A=Air)		1 1						-		۱۴	Special la	nstructions/N	
		06:10	Preservatio	Solid	¥	X		0000			55 (5)	202 65		1 X	Please use MDL	as RI. Do not us	ents
Al49573 Biosolids (810-17138-1)	3/7/22	Eastern												Laner	samples for QC. I	Please reserve	ates
														Race			
					+	-		\neg		+				17:0			
Note: Since laboratory accreditations are subject to change, Eurofins Eats currently maintain accreditation in the State of Origin listed above for anal Eurofins Eaton Analytical, LLC attention immediately. If all requested acc	lysis/tests/matrix being analyze	id, the sample	s must be shipped	back to the	Eurofie	os Est	on Analy	vtical 1	I C labo	retory or i	other instr	nuctions wi	ment is forw I be provide	arded unde d. Any chai	er chain-of-custody. If	the laboratory do- status should be	t nt to
Possible Hazard Identification Unconfirmed					S		e Disp Return			may b	e asse:	ssed if s osal By L	amples a		ned longer than		
Deliverable Requested: I, II, III, IV, Other (specify)	Primary Delivera	ble Rank: 2	2		S					Require		osai by L	80	Arci	nive ror	Months	_
Empty Kit Relinquished by:		Date:			Time							Method o	f Shipment:				_
Relinquished by: Relinquished by:	Dete/Time: 03(09/2) Date/Time:	7	1607)	npany		Rec	ceived b						Date/Time			Company	
Relinquished by: Custody Seals Intact: Custody Seal No.:	Date/Time:		Cor	npany			ceived by		re/e1°C	and Oth	r Remark		Date/Tink	War	1029	Company	
Δ Yes Δ No							NO I WIT	יטפיפעי	10(3) C	and Othe	Cemark	A	3/	/		Ver: 06/08/7	17

Login Sample Receipt Checklist

Client: Ann Arbor Water Treatment Plant Job Number: 810-17138-1

Login Number: 17138 List Source: Eurofins Eaton South Bend

List Number: 1

Creator: Pehling-Wright, Penny

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

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Login Sample Receipt Checklist

Client: Ann Arbor Water Treatment Plant Job Number: 810-17138-1

Login Number: 17138

List Source: Eurofins Lancaster Laboratories Env, LLC

List Number: 2 List Creation: 03/10/22 01:40 PM Creator: Hartlove, Katie M

oreator. Hartiove, Natio iii		
Question	Answer	Comment
The cooler's custody seal is intact.	N/A	
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 (=6C, not frozen).</td <td>True</td> <td></td>	True	
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable (=6C, not frozen).</td <td>N/A</td> <td></td>	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	

False

N/A

Received project as a subcontract.

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Is the Field Sampler's name present on COC?

Sample custody seals are intact.