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ANALYTICAL REPORT

Eurofins TestAmerica, Michigan
10448 Citation Drive
Suite 200
Brighton, MI 48116
Tel: (810)229-2763

Laboratory Job ID: 190-25990-1
Client Project/Site: BIOSOLIDS SAMPLE

For:
City of Brighton
200 North 1st Street
Brighton, Michigan 48116

Attn: Corey Brooks

Sue Schafer

Authorized for release by:
6/14/2021 3:15:48 PM

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Sample Summary

Client: City of Brighton
Project/Site: BIOSOLIDS SAMPLE

Job ID: 190-25990-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
190-25990-1	SLUDGE STORAGE	Solid	05/19/21 12:45	05/20/21 08:00	

Job ID: 190-25990-1

Laboratory: Eurofins TestAmerica, Michigan

Narrative

Job Narrative
190-25990-1

Comments
No additional comments.

Receipt
The samples were received on 5/20/2021 8:00 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.4º C.

LCMS
Method 537 (modified): Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for the following sample: SLUDGE STORAGE (190-25990-1). 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 sample is below the method recommended limit: SLUDGE STORAGE (190-25990-1). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample.

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

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

Organic Prep
Method SHAKE: The following samples were yellow after final volume/extraction: SLUDGE STORAGE (190-25990-1) and EQUIPMENT BLANK (190-25990-2).

preparation batch 320-491959
Method: PFC_IDA/Shake_Bath_14D
Matrix: Solid

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

Client: City of Brighton
Project/Site: BIOSOLIDS SAMPLE

Job ID: 190-25990-1

Client Sample ID: SLUDGE STORAGE

Date Collected: 05/19/21 12:45
Date Received: 05/20/21 08:00

Lab Sample ID: 190-25990-1

Matrix: Solid
Percent Solids: 5.9

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<3.2		3.2		ug/Kg	☼	05/23/21 20:03	05/26/21 07:07	1
F-53B Major	<3.2		3.2		ug/Kg	☼	05/23/21 20:03	05/26/21 07:07	1
F-53B Minor	<3.2		3.2		ug/Kg	☼	05/23/21 20:03	05/26/21 07:07	1
4:2 FTS	<32		32		ug/Kg	☼	05/23/21 20:03	05/26/21 07:07	1
6:2 FTS	<32		32		ug/Kg	☼	05/23/21 20:03	05/26/21 07:07	1
8:2 FTS	<32		32		ug/Kg	☼	05/23/21 20:03	05/26/21 07:07	1
HFPO-DA (GenX)	<4.0		4.0		ug/Kg	☼	05/23/21 20:03	05/26/21 07:07	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<32		32		ug/Kg	☼	05/23/21 20:03	05/26/21 07:07	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<32		32		ug/Kg	☼	05/23/21 20:03	05/26/21 07:07	1
Perfluorobutanesulfonic acid (PFBS)	<3.2		3.2		ug/Kg	☼	05/23/21 20:03	05/26/21 07:07	1
Perfluorobutanoic acid (PFBA)	<3.2		3.2		ug/Kg	☼	05/23/21 20:03	05/26/21 07:07	1
Perfluorodecanesulfonic acid (PFDS)	<3.2		3.2		ug/Kg	☼	05/23/21 20:03	05/26/21 07:07	1
Perfluorodecanoic acid (PFDA)	**18**		3.2		ug/Kg	☼	05/23/21 20:03	05/26/21 07:07	1
Perfluorododecanoic acid (PFDoA)	**4.1**		3.2		ug/Kg	☼	05/23/21 20:03	05/26/21 07:07	1
Perfluoroheptanesulfonic Acid (PFHpS)	<3.2		3.2		ug/Kg	☼	05/23/21 20:03	05/26/21 07:07	1
Perfluoroheptanoic acid (PFHpA)	<3.2		3.2		ug/Kg	☼	05/23/21 20:03	05/26/21 07:07	1
Perfluorohexanesulfonic acid (PFHxS)	<3.2		3.2		ug/Kg	☼	05/23/21 20:03	05/26/21 07:07	1
Perfluorohexanoic acid (PFHxA)	**5.3**		3.2		ug/Kg	☼	05/23/21 20:03	05/26/21 07:07	1
Perfluorononanesulfonic acid (PFNS)	<3.2		3.2		ug/Kg	☼	05/23/21 20:03	05/26/21 07:07	1
Perfluorononanoic acid (PFNA)	<3.2		3.2		ug/Kg	☼	05/23/21 20:03	05/26/21 07:07	1
Perfluorooctanesulfonamide (FOSA)	<3.2		3.2		ug/Kg	☼	05/23/21 20:03	05/26/21 07:07	1
Perfluorooctanesulfonic acid (PFOS)	<8.0		8.0		ug/Kg	☼	05/23/21 20:03	05/26/21 07:07	1
Perfluorooctanoic acid (PFOA)	**8.5**		3.2		ug/Kg	☼	05/23/21 20:03	05/26/21 07:07	1
Perfluoropentanesulfonic acid (PFPeS)	<3.2		3.2		ug/Kg	☼	05/23/21 20:03	05/26/21 07:07	1
Perfluoropentanoic acid (PFPeA)	<3.2		3.2		ug/Kg	☼	05/23/21 20:03	05/26/21 07:07	1
Perfluorotetradecanoic acid (PFTeA)	<3.2		3.2		ug/Kg	☼	05/23/21 20:03	05/26/21 07:07	1
Perfluorotridecanoic acid (PFTriA)	<3.2		3.2		ug/Kg	☼	05/23/21 20:03	05/26/21 07:07	1
Perfluoroundecanoic acid (PFUnA)	<3.2		3.2		ug/Kg	☼	05/23/21 20:03	05/26/21 07:07	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*81*		*25 - 150*	*05/23/21 20:03*	*05/26/21 07:07*	*1*
13C3 HFPO-DA	*79*		*25 - 150*	*05/23/21 20:03*	*05/26/21 07:07*	*1*
13C4 PFBA	*19*	*5-	*25 - 150*	*05/23/21 20:03*	*05/26/21 07:07*	*1*
13C3 PFBS	*86*		*25 - 150*	*05/23/21 20:03*	*05/26/21 07:07*	*1*
13C2 PFDA	*90*		*25 - 150*	*05/23/21 20:03*	*05/26/21 07:07*	*1*
13C2 PFDoA	*83*		*25 - 150*	*05/23/21 20:03*	*05/26/21 07:07*	*1*
13C4 PFHpA	*96*		*25 - 150*	*05/23/21 20:03*	*05/26/21 07:07*	*1*
13C2 PFHxA	*90*		*25 - 150*	*05/23/21 20:03*	*05/26/21 07:07*	*1*
13C5 PFNA	*95*		*25 - 150*	*05/23/21 20:03*	*05/26/21 07:07*	*1*
13C4 PFOA	*96*		*25 - 150*	*05/23/21 20:03*	*05/26/21 07:07*	*1*
13C4 PFOS	*89*		*25 - 150*	*05/23/21 20:03*	*05/26/21 07:07*	*1*
13C5 PFPeA	*62*		*25 - 150*	*05/23/21 20:03*	*05/26/21 07:07*	*1*
13C2 PFTeDA	*72*		*25 - 150*	*05/23/21 20:03*	*05/26/21 07:07*	*1*
13C2 PFUnA	*91*		*25 - 150*	*05/23/21 20:03*	*05/26/21 07:07*	*1*
d5-NEtFOSAA	*67*		*25 - 150*	*05/23/21 20:03*	*05/26/21 07:07*	*1*
d3-NMeFOSAA	*72*		*25 - 150*	*05/23/21 20:03*	*05/26/21 07:07*	*1*

Client: City of Brighton
Project/Site: BIOSOLIDS SAMPLE

Job ID: 190-25990-1

Client Sample ID: SLUDGE STORAGE
Date Collected: 05/19/21 12:45
Date Received: 05/20/21 08:00

Lab Sample ID: 190-25990-1
Matrix: Solid
Percent Solids: 5.9

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

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
M2-4:2 FTS	*217*	*5+*	*25 - 150*	*05/23/21 20:03*	*05/26/21 07:07*	*1*
M2-6:2 FTS	*243*	*5+*	*25 - 150*	*05/23/21 20:03*	*05/26/21 07:07*	*1*
M2-8:2 FTS	*199*	*5+*	*25 - 150*	*05/23/21 20:03*	*05/26/21 07:07*	*1*
18O2 PFHxS	*94*		*25 - 150*	*05/23/21 20:03*	*05/26/21 07:07*	*1*

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	**94.1**		0.1	%			06/01/21 14:08	1
Percent Solids	**5.9**		0.1	%			06/01/21 14:08	1

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-491959/1-A
Matrix: Solid
Analysis Batch: 492561

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 491959

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.20		0.20		ug/Kg		05/23/21 20:03	05/26/21 04:50	1
F-53B Major	<0.20		0.20		ug/Kg		05/23/21 20:03	05/26/21 04:50	1
F-53B Minor	<0.20		0.20		ug/Kg		05/23/21 20:03	05/26/21 04:50	1
4:2 FTS	<2.0		2.0		ug/Kg		05/23/21 20:03	05/26/21 04:50	1
6:2 FTS	<2.0		2.0		ug/Kg		05/23/21 20:03	05/26/21 04:50	1
8:2 FTS	<2.0		2.0		ug/Kg		05/23/21 20:03	05/26/21 04:50	1
HFPO-DA (GenX)	<0.25		0.25		ug/Kg		05/23/21 20:03	05/26/21 04:50	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<2.0		2.0		ug/Kg		05/23/21 20:03	05/26/21 04:50	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<2.0		2.0		ug/Kg		05/23/21 20:03	05/26/21 04:50	1
Perfluorobutanesulfonic acid (PFBS)	<0.20		0.20		ug/Kg		05/23/21 20:03	05/26/21 04:50	1
Perfluorobutanoic acid (PFBA)	<0.20		0.20		ug/Kg		05/23/21 20:03	05/26/21 04:50	1
Perfluorodecanesulfonic acid (PFDS)	<0.20		0.20		ug/Kg		05/23/21 20:03	05/26/21 04:50	1
Perfluorodecanoic acid (PFDA)	<0.20		0.20		ug/Kg		05/23/21 20:03	05/26/21 04:50	1
Perfluorododecanoic acid (PFDoA)	<0.20		0.20		ug/Kg		05/23/21 20:03	05/26/21 04:50	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.20		0.20		ug/Kg		05/23/21 20:03	05/26/21 04:50	1
Perfluoroheptanoic acid (PFHpA)	<0.20		0.20		ug/Kg		05/23/21 20:03	05/26/21 04:50	1
Perfluorohexanesulfonic acid (PFHxS)	<0.20		0.20		ug/Kg		05/23/21 20:03	05/26/21 04:50	1
Perfluorohexanoic acid (PFHxA)	<0.20		0.20		ug/Kg		05/23/21 20:03	05/26/21 04:50	1
Perfluorononanesulfonic acid (PFNS)	<0.20		0.20		ug/Kg		05/23/21 20:03	05/26/21 04:50	1
Perfluorononanoic acid (PFNA)	<0.20		0.20		ug/Kg		05/23/21 20:03	05/26/21 04:50	1
Perfluorooctanesulfonamide (FOSA)	<0.20		0.20		ug/Kg		05/23/21 20:03	05/26/21 04:50	1
Perfluorooctanesulfonic acid (PFOS)	<0.50		0.50		ug/Kg		05/23/21 20:03	05/26/21 04:50	1
Perfluorooctanoic acid (PFOA)	<0.20		0.20		ug/Kg		05/23/21 20:03	05/26/21 04:50	1
Perfluoropentanesulfonic acid (PFPeS)	<0.20		0.20		ug/Kg		05/23/21 20:03	05/26/21 04:50	1
Perfluoropentanoic acid (PFPeA)	<0.20		0.20		ug/Kg		05/23/21 20:03	05/26/21 04:50	1
Perfluorotetradecanoic acid (PFTeA)	<0.20		0.20		ug/Kg		05/23/21 20:03	05/26/21 04:50	1
Perfluorotridecanoic acid (PFTriA)	<0.20		0.20		ug/Kg		05/23/21 20:03	05/26/21 04:50	1
Perfluoroundecanoic acid (PFUnA)	<0.20		0.20		ug/Kg		05/23/21 20:03	05/26/21 04:50	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*78*		*25 - 150*	*05/23/21 20:03*	*05/26/21 04:50*	*1*
13C3 HFPO-DA	*80*		*25 - 150*	*05/23/21 20:03*	*05/26/21 04:50*	*1*
13C4 PFBA	*78*		*25 - 150*	*05/23/21 20:03*	*05/26/21 04:50*	*1*
13C3 PFBS	*76*		*25 - 150*	*05/23/21 20:03*	*05/26/21 04:50*	*1*
13C2 PFDA	*90*		*25 - 150*	*05/23/21 20:03*	*05/26/21 04:50*	*1*
13C2 PFDoA	*98*		*25 - 150*	*05/23/21 20:03*	*05/26/21 04:50*	*1*
13C4 PFHpA	*93*		*25 - 150*	*05/23/21 20:03*	*05/26/21 04:50*	*1*
13C2 PFHxA	*85*		*25 - 150*	*05/23/21 20:03*	*05/26/21 04:50*	*1*
13C5 PFNA	*92*		*25 - 150*	*05/23/21 20:03*	*05/26/21 04:50*	*1*
13C4 PFOA	*86*		*25 - 150*	*05/23/21 20:03*	*05/26/21 04:50*	*1*
13C4 PFOS	*84*		*25 - 150*	*05/23/21 20:03*	*05/26/21 04:50*	*1*
13C5 PFPeA	*82*		*25 - 150*	*05/23/21 20:03*	*05/26/21 04:50*	*1*
13C2 PFTeDA	*79*		*25 - 150*	*05/23/21 20:03*	*05/26/21 04:50*	*1*
13C2 PFUnA	*92*		*25 - 150*	*05/23/21 20:03*	*05/26/21 04:50*	*1*
d5-NEtFOSAA	*91*		*25 - 150*	*05/23/21 20:03*	*05/26/21 04:50*	*1*

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

Lab Sample ID: MB 320-491959/1-A
Matrix: Solid
Analysis Batch: 492561

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 491959

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
d3-NMeFOSAA	87		25 - 150	05/23/21 20:03	05/26/21 04:50	1
M2-4:2 FTS	83		25 - 150	05/23/21 20:03	05/26/21 04:50	1
M2-6:2 FTS	96		25 - 150	05/23/21 20:03	05/26/21 04:50	1
M2-8:2 FTS	101		25 - 150	05/23/21 20:03	05/26/21 04:50	1
18O2 PFHxS	97		25 - 150	05/23/21 20:03	05/26/21 04:50	1

Lab Sample ID: LCS 320-491959/2-A
Matrix: Solid
Analysis Batch: 492561

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 491959

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.88	1.68		ug/Kg		89	79 - 139
F-53B Major	1.86	1.80		ug/Kg		97	74 - 134
F-53B Minor	1.88	1.63		ug/Kg		87	66 - 136
4:2 FTS	1.87	1.77	J	ug/Kg		95	68 - 143
6:2 FTS	1.90	1.68	J	ug/Kg		89	73 - 139
8:2 FTS	1.92	1.79	J	ug/Kg		93	75 - 135
HFPO-DA (GenX)	2.00	1.99		ug/Kg		100	53 - 158
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	1.78	J	ug/Kg		89	72 - 132
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	2.06		ug/Kg		103	72 - 132
Perfluorobutanesulfonic acid (PFBS)	1.77	1.74		ug/Kg		99	69 - 129
Perfluorobutanoic acid (PFBA)	2.00	1.88		ug/Kg		94	76 - 136
Perfluorodecanesulfonic acid (PFDS)	1.93	1.85		ug/Kg		96	71 - 131
Perfluorodecanoic acid (PFDA)	2.00	2.08		ug/Kg		104	72 - 132
Perfluorododecanoic acid (PFDoA)	2.00	1.87		ug/Kg		93	71 - 131
Perfluoroheptanesulfonic Acid (PFHpS)	1.90	1.87		ug/Kg		98	76 - 136
Perfluoroheptanoic acid (PFHpA)	2.00	1.92		ug/Kg		96	71 - 131
Perfluorohexanesulfonic acid (PFHxS)	1.82	1.82		ug/Kg		100	62 - 122
Perfluorohexanoic acid (PFHxA)	2.00	1.94		ug/Kg		97	71 - 131
Perfluorononanesulfonic acid (PFNS)	1.92	1.85		ug/Kg		96	72 - 132
Perfluorononanoic acid (PFNA)	2.00	1.96		ug/Kg		98	73 - 133
Perfluorooctanesulfonamide (FOSA)	2.00	2.17		ug/Kg		109	77 - 137
Perfluorooctanesulfonic acid (PFOS)	1.86	1.74		ug/Kg		94	68 - 141
Perfluorooctanoic acid (PFOA)	2.00	2.09		ug/Kg		105	72 - 132
Perfluoropentanesulfonic acid (PFPeS)	1.88	2.01		ug/Kg		107	66 - 126
Perfluoropentanoic acid (PFPeA)	2.00	2.21		ug/Kg		110	69 - 129
Perfluorotetradecanoic acid (PFTeA)	2.00	1.98		ug/Kg		99	67 - 127
Perfluorotridecanoic acid (PFTriA)	2.00	1.63		ug/Kg		82	71 - 131

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

Lab Sample ID: LCS 320-491959/2-A
Matrix: Solid
Analysis Batch: 492561

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 491959

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Perfluoroundecanoic acid (PFUnA)			2.00	1.81		ug/Kg		90	66 - 126		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C8 FOSA	*84*		*25 - 150*
13C3 HFPO-DA	*85*		*25 - 150*
13C4 PFBA	*83*		*25 - 150*
13C3 PFBS	*80*		*25 - 150*
13C2 PFDA	*80*		*25 - 150*
13C2 PFDoA	*103*		*25 - 150*
13C4 PFHpA	*95*		*25 - 150*
13C2 PFHxA	*87*		*25 - 150*
13C5 PFNA	*94*		*25 - 150*
13C4 PFOA	*90*		*25 - 150*
13C4 PFOS	*89*		*25 - 150*
13C5 PFPeA	*84*		*25 - 150*
13C2 PFTeDA	*81*		*25 - 150*
13C2 PFUnA	*92*		*25 - 150*
d5-NEtFOSAA	*96*		*25 - 150*
d3-NMeFOSAA	*89*		*25 - 150*
M2-4:2 FTS	*99*		*25 - 150*
M2-6:2 FTS	*101*		*25 - 150*
M2-8:2 FTS	*88*		*25 - 150*
18O2 PFHxS	*87*		*25 - 150*

Isotope Dilution Summary

Client: City of Brighton
Project/Site: BIOSOLIDS SAMPLE

Job ID: 190-25990-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Solid

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFOSA	HFPODA	PFBA	C3PFBS	PFDA	PFDoA	C4PFHA	PFHxA
Lab Sample ID	Client Sample ID	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)
190-25990-1	SLUDGE STORAGE	81	79	19 *5-	86	90	83	96	90
LCS 320-491959/2-A	Lab Control Sample	84	85	83	80	80	103	95	87
MB 320-491959/1-A	Method Blank	78	80	78	76	90	98	93	85

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFNA	PFOA	PFOS	PFPeA	PFTDA	PFUnA	d5NEFOS	d3NMFOS
Lab Sample ID	Client Sample ID	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)
190-25990-1	SLUDGE STORAGE	95	96	89	62	72	91	67	72
LCS 320-491959/2-A	Lab Control Sample	94	90	89	84	81	92	96	89
MB 320-491959/1-A	Method Blank	92	86	84	82	79	92	91	87

		Percent Isotope Dilution Recovery (Acceptance Limits)			
		M242FTS	M262FTS	M282FTS	PFHxS
Lab Sample ID	Client Sample ID	(25-150)	(25-150)	(25-150)	(25-150)
190-25990-1	SLUDGE STORAGE	217 *5+	243 *5+	199 *5+	94
LCS 320-491959/2-A	Lab Control Sample	99	101	88	87
MB 320-491959/1-A	Method Blank	83	96	101	97

Surrogate Legend

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

Definitions/Glossary

Client: City of Brighton
Project/Site: BIOSOLIDS SAMPLE

Job ID: 190-25990-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
*5+	Isotope dilution analyte is outside acceptance limits, high biased.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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
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

0.3/0.4

Chain of Custody Record 489568

MICHIGAN 190

eurofins | Environment Testing TestAmerica

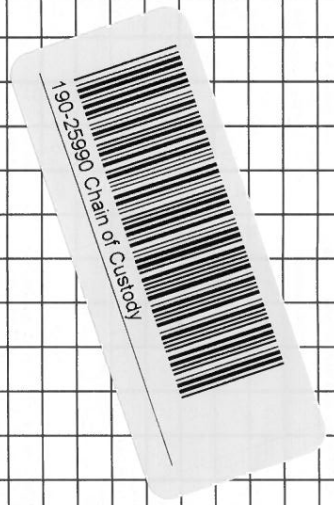
Address: _____

Regulatory Program: ☐ DW ☒ NPDES ☐ RCRA ☐ Other:

TAL-8210

Client Contact	Project Manager: COREY BROOKS	Site Contact:	Date:	COC No:
Company Name: CITY OF BRIGHTON	Tel/Email:	Lab Contact:	Carrier:	_____ of _____ COCs
Address: 200 N FIRST ST	Analysis Turnaround Time			Sampler:
City/State/Zip: BRIGHTON MI 48116	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 810 227-9479	TAT if different from Below _____			Walk-in Client:
Fax:	☐ 2 weeks			Lab Sampling:
Project Name: BIOSOLIDS SAMPLE	☐ 1 week			
Site:	☐ 2 days			Job / SDG No.:
P O #	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	PFAS 28 ANALYTE		Sample Specific Notes:
SLUDGE STORAGE	5/19/21	12:45PM	G					X	*	ANAL 42B AS A SOLID WITH DRY WEIGHT CORRECTION
EQUIPMENT BLANK	5/19/21	12:15PM	G					X		
										*
										Project-19002144
										AG- Solid -PFAS 28 (SAC)
										*Project-19002144
										AG-Water PFAS 28 ($) STC



Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ | Therm ID No.:_____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
		5/19/21 1330		ETA	5/19/21 1331
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	ETA	5/19/21 1332		ETA	5-20-21 800
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Eurofins TestAmerica Canton Sample Receipt Form/Narrative **Login # :** 190-25990
Canton Facility

Client City of Brighton Site Name _____ Cooler unpacked by: Trent C

Cooler Received on 5-20-21 Opened on 5-20-21

FedEx: 1st Grd Exp UPS FAS ~~Clipper~~ Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # _____ Foam Box ~~Client Cooler~~ Box Other _____

Packing material used: ~~Bubble Wrap~~ Foam ~~Plastic Bag~~ None Other _____

COOLANT: ~~Wet Ice~~ Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-11 (CF **+0.1** °C) Observed Cooler Temp. 0.3 °C Corrected Cooler Temp. 0.4 °C
   IR GUN #IR-12 (CF **+0.2**°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1	(Yes)	No
-Were the seals on the outside of the cooler(s) signed & dated?	(Yes)	No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes	(No)
-Were tamper/custody seals intact and uncompromised?	(Yes)	No NA
3. Shippers' packing slip attached to the cooler(s)?	Yes	(No)
4. Did custody papers accompany the sample(s)?	(Yes)	No
5. Were the custody papers relinquished & signed in the appropriate place?	(Yes)	No
6. Was/were the person(s) who collected the samples clearly identified on the COC?	Yes	(No)
7. Did all bottles arrive in good condition (Unbroken)?	(Yes)	No
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC?	(Yes)	No
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)?	(Y)	(N) (Y)
10. Were correct bottle(s) used for the test(s) indicated?	(Yes)	No
11. Sufficient quantity received to perform indicated analyses?	(Yes)	No
12. Are these work share samples and all listed on the COC?	Yes	(No)
If yes, Questions 13-17 have been checked at the originating laboratory.		
13. Were all preserved sample(s) at the correct pH upon receipt?	Yes	No NA pH Strip Lot# **HC022887**
14. Were VOAs on the COC?	Yes	No
15. Were air bubbles >6 mm in any VOA vials? ● ← Larger than this.	Yes	No NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____	Yes	No
17. Was a LL Hg or Me Hg trip blank present? _____	Yes	No

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page | Samples processed by:

_____

_____

_____

_____

19. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

WI-NC-099

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone: 330-497-9396 Fax: 330-497-0772

Chain of Custody Record

eurofins Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Schafer, Sue	Carrier Tracking No(s):	COC No: 240-137081.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Sue.Schafer@Eurofinset.com	State of Origin: Michigan	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 190-25990-1
Address: 880 Riverside Parkway, ,	Due Date Requested: 6/17/2021			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: City of Brighton	Project #: 19002144			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA/Shake_Bath_14D PFAS 28	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
SLUDGE STORAGE (190-25990-1)	5/19/21	12:45 Eastern		Solid			X	1	
EQUIPMENT BLANK (190-25990-2)	5/19/21	12:15 Eastern		Solid			X	1	

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		5/21/21 1500			5/21/21 920	Eurofins
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 2.5

Ver: 11/01/2020

QC Association Summary

Client: City of Brighton
Project/Site: BIOSOLIDS SAMPLE

Job ID: 190-25990-1

LCMS

Prep Batch: 491959

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-25990-1	SLUDGE STORAGE	Total/NA	Solid	SHAKE	
MB 320-491959/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-491959/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	

Analysis Batch: 492561

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-25990-1	SLUDGE STORAGE	Total/NA	Solid	537 (modified)	491959
MB 320-491959/1-A	Method Blank	Total/NA	Solid	537 (modified)	491959
LCS 320-491959/2-A	Lab Control Sample	Total/NA	Solid	537 (modified)	491959

General Chemistry

Analysis Batch: 494467

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-25990-1	SLUDGE STORAGE	Total/NA	Solid	D 2216	

Lab Chronicle

Client: City of Brighton
Project/Site: BIOSOLIDS SAMPLE

Job ID: 190-25990-1

Client Sample ID: SLUDGE STORAGE

Lab Sample ID: 190-25990-1
Date Collected: 05/19/21 12:45
Matrix: Solid
Date Received: 05/20/21 08:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	494467	06/01/21 14:08	TCS	TAL SAC

Client Sample ID: SLUDGE STORAGE

Lab Sample ID: 190-25990-1
Date Collected: 05/19/21 12:45
Matrix: Solid
Date Received: 05/20/21 08:00
Percent Solids: 5.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			491959	05/23/21 20:03	FX	TAL SAC
Total/NA	Analysis	537 (modified)		1	492561	05/26/21 07:07	D1R	TAL SAC

Laboratory References:

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

Analyst References:

Lab: TAL SAC

Batch Type: Prep

FX = Fong Xiong

Batch Type: Analysis

D1R = Dhatpakorn Ruangyotsakul

TCS = Tammy Saechao