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ANALYTICAL REPORT

Eurofins Michigan
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Laboratory Job ID: 190-27798-1
Client Project/Site: City of Brighton WWTP PFAS

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

Attn: Corey Brooks

Sue Schafer

Authorized for release by:
2/7/2022 1:20:00 PM

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Sample Summary

Client: City of Brighton
Project/Site: City of Brighton WWTP PFAS

Job ID: 190-27798-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
190-27798-1	SLUDGE STORAGE	Solid	01/18/22 12:30	01/18/22 13:10

Case Narrative

Client: City of Brighton
Project/Site: City of Brighton WWTP PFAS

Job ID: 190-27798-1

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Laboratory: Eurofins Michigan

Narrative

Job Narrative
190-27798-1

Comments
The PFC_IDA Perfluorinated Hydrocarbons analysis was performed at the Eurofins Environment Testing, Sacramento laboratory.
Receipt
The sample was received on 1/18/2022 1:10 PM. 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 10.9º C.

LCMS
Method 537 (modified): Due to the high concentration of Perfluorohexanoic acid (PFHxA), the matrix spike / matrix spike duplicate (MS/MSD) for preparation batch 320-560158 and analytical batch 320-562105 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria.

Method 537 (modified): The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 320-560158 and analytical batch 320-562105 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 537 (modified): The Isotope Dilution Analyte (IDA) recovery associated with the following samples is below the method recommended limit: (320-84125-A-2-A), (320-84125-A-2-B MS) and (320-84125-A-2-C MSD). 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 samples.

Method 537 (modified): Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for the following samples: SLUDGE STORAGE (190-27798-1). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Method 537 (modified): The "I" qualifier means the transition mass ratio for the indicated analyte was below the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty. However, analyst judgment was used to positively identify the analyte. SLUDGE STORAGE (190-27798-1)

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

Client: City of Brighton
Project/Site: City of Brighton WWTP PFAS

Job ID: 190-27798-1

Client Sample ID: SLUDGE STORAGE

Date Collected: 01/18/22 12:30
Date Received: 01/18/22 13:10

Lab Sample ID: 190-27798-1

Matrix: Solid
Percent Solids: 6.8

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<2.9		2.9		ug/Kg	☼	01/24/22 11:51	01/31/22 20:23	1
F-53B Major	<2.9		2.9		ug/Kg	☼	01/24/22 11:51	01/31/22 20:23	1
F-53B Minor	<2.9		2.9		ug/Kg	☼	01/24/22 11:51	01/31/22 20:23	1
4:2 FTS	<2.9		2.9		ug/Kg	☼	01/24/22 11:51	01/31/22 20:23	1
6:2 FTS	<2.9		2.9		ug/Kg	☼	01/24/22 11:51	01/31/22 20:23	1
8:2 FTS	<2.9		2.9		ug/Kg	☼	01/24/22 11:51	01/31/22 20:23	1
HFPO-DA (GenX)	<2.9		2.9		ug/Kg	☼	01/24/22 11:51	01/31/22 20:23	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	**4.0**		2.9		ug/Kg	☼	01/24/22 11:51	01/31/22 20:23	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	**15**		2.9		ug/Kg	☼	01/24/22 11:51	01/31/22 20:23	1
Perfluorobutanesulfonic acid (PFBS)	<2.9		2.9		ug/Kg	☼	01/24/22 11:51	01/31/22 20:23	1
Perfluorobutanoic acid (PFBA)	<2.9		2.9		ug/Kg	☼	01/24/22 11:51	01/31/22 20:23	1
Perfluorodecanesulfonic acid (PFDS)	<2.9		2.9		ug/Kg	☼	01/24/22 11:51	01/31/22 20:23	1
Perfluorodecanoic acid (PFDA)	**21**		2.9		ug/Kg	☼	01/24/22 11:51	01/31/22 20:23	1
Perfluorododecanoic acid (PFDoA)	**4.5**		2.9		ug/Kg	☼	01/24/22 11:51	01/31/22 20:23	1
Perfluoroheptanesulfonic Acid (PFHpS)	<2.9		2.9		ug/Kg	☼	01/24/22 11:51	01/31/22 20:23	1
Perfluoroheptanoic acid (PFHpA)	<2.9		2.9		ug/Kg	☼	01/24/22 11:51	01/31/22 20:23	1
Perfluorohexanesulfonic acid (PFHxS)	<2.9		2.9		ug/Kg	☼	01/24/22 11:51	01/31/22 20:23	1
Perfluorohexanoic acid (PFHxA)	**6.6**		2.9		ug/Kg	☼	01/24/22 11:51	01/31/22 20:23	1
Perfluorononanesulfonic acid (PFNS)	<2.9		2.9		ug/Kg	☼	01/24/22 11:51	01/31/22 20:23	1
Perfluorononanoic acid (PFNA)	<2.9		2.9		ug/Kg	☼	01/24/22 11:51	01/31/22 20:23	1
Perfluorooctanesulfonamide (FOSA)	**3.1**		2.9		ug/Kg	☼	01/24/22 11:51	01/31/22 20:23	1
Perfluorooctanesulfonic acid (PFOS)	**21**	I	2.9		ug/Kg	☼	01/24/22 11:51	01/31/22 20:23	1
Perfluorooctanoic acid (PFOA)	**7.1**		2.9		ug/Kg	☼	01/24/22 11:51	01/31/22 20:23	1
Perfluoropentanesulfonic acid (PFPeS)	<2.9		2.9		ug/Kg	☼	01/24/22 11:51	01/31/22 20:23	1
Perfluoropentanoic acid (PFPeA)	**3.6**		2.9		ug/Kg	☼	01/24/22 11:51	01/31/22 20:23	1
Perfluorotetradecanoic acid (PFTeA)	<2.9		2.9		ug/Kg	☼	01/24/22 11:51	01/31/22 20:23	1
Perfluorotridecanoic acid (PFTriA)	<2.9		2.9		ug/Kg	☼	01/24/22 11:51	01/31/22 20:23	1
Perfluoroundecanoic acid (PFUnA)	<2.9		2.9		ug/Kg	☼	01/24/22 11:51	01/31/22 20:23	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*87*		*25 - 150*	*01/24/22 11:51*	*01/31/22 20:23*	*1*
13C3 HFPO-DA	*65*		*25 - 150*	*01/24/22 11:51*	*01/31/22 20:23*	*1*
13C4 PFBA	*71*		*25 - 150*	*01/24/22 11:51*	*01/31/22 20:23*	*1*
13C3 PFBS	*64*		*25 - 150*	*01/24/22 11:51*	*01/31/22 20:23*	*1*
13C2 PFDA	*90*		*25 - 150*	*01/24/22 11:51*	*01/31/22 20:23*	*1*
13C2 PFDoA	*82*		*25 - 150*	*01/24/22 11:51*	*01/31/22 20:23*	*1*
13C4 PFHpA	*79*		*25 - 150*	*01/24/22 11:51*	*01/31/22 20:23*	*1*
13C2 PFHxA	*55*		*25 - 150*	*01/24/22 11:51*	*01/31/22 20:23*	*1*
13C5 PFNA	*94*		*25 - 150*	*01/24/22 11:51*	*01/31/22 20:23*	*1*
13C4 PFOA	*97*		*25 - 150*	*01/24/22 11:51*	*01/31/22 20:23*	*1*
13C4 PFOS	*90*		*25 - 150*	*01/24/22 11:51*	*01/31/22 20:23*	*1*
13C5 PFPeA	*78*		*25 - 150*	*01/24/22 11:51*	*01/31/22 20:23*	*1*
13C2 PFTeDA	*77*		*25 - 150*	*01/24/22 11:51*	*01/31/22 20:23*	*1*
13C2 PFUnA	*81*		*25 - 150*	*01/24/22 11:51*	*01/31/22 20:23*	*1*

Client: City of Brighton
Project/Site: City of Brighton WWTP PFAS

Job ID: 190-27798-1

Client Sample ID: SLUDGE STORAGE

Date Collected: 01/18/22 12:30
Date Received: 01/18/22 13:10

Lab Sample ID: 190-27798-1

Matrix: Solid
Percent Solids: 6.8

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

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d5-NEtFOSAA	91		25 - 150	01/24/22 11:51	01/31/22 20:23	1
d3-NMeFOSAA	87		25 - 150	01/24/22 11:51	01/31/22 20:23	1
M2-4:2 FTS	80		25 - 150	01/24/22 11:51	01/31/22 20:23	1
M2-6:2 FTS	136		25 - 150	01/24/22 11:51	01/31/22 20:23	1
M2-8:2 FTS	164	*5+	25 - 150	01/24/22 11:51	01/31/22 20:23	1
18O2 PFHxS	88		25 - 150	01/24/22 11:51	01/31/22 20:23	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	93.2		0.1		%			01/19/22 14:30	1
Percent Solids	6.8		0.1		%			01/19/22 14:30	1

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-560158/1-A
Matrix: Solid
Analysis Batch: 561300

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 560158

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		01/24/22 11:51	01/28/22 11:26	1
F-53B Major	<0.20		0.20		ug/Kg		01/24/22 11:51	01/28/22 11:26	1
F-53B Minor	<0.20		0.20		ug/Kg		01/24/22 11:51	01/28/22 11:26	1
4:2 FTS	<0.20		0.20		ug/Kg		01/24/22 11:51	01/28/22 11:26	1
6:2 FTS	<0.20		0.20		ug/Kg		01/24/22 11:51	01/28/22 11:26	1
8:2 FTS	<0.20		0.20		ug/Kg		01/24/22 11:51	01/28/22 11:26	1
HFPO-DA (GenX)	<0.20		0.20		ug/Kg		01/24/22 11:51	01/28/22 11:26	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	<0.20		0.20		ug/Kg		01/24/22 11:51	01/28/22 11:26	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	<0.20		0.20		ug/Kg		01/24/22 11:51	01/28/22 11:26	1
Perfluorobutanesulfonic acid (PFBS)	<0.20		0.20		ug/Kg		01/24/22 11:51	01/28/22 11:26	1
Perfluorobutanoic acid (PFBA)	<0.20		0.20		ug/Kg		01/24/22 11:51	01/28/22 11:26	1
Perfluorodecanesulfonic acid (PFDS)	<0.20		0.20		ug/Kg		01/24/22 11:51	01/28/22 11:26	1
Perfluorodecanoic acid (PFDA)	<0.20		0.20		ug/Kg		01/24/22 11:51	01/28/22 11:26	1
Perfluorododecanoic acid (PFDoA)	<0.20		0.20		ug/Kg		01/24/22 11:51	01/28/22 11:26	1
Perfluoroheptanesulfonic Acid (PFHpS)	<0.20		0.20		ug/Kg		01/24/22 11:51	01/28/22 11:26	1
Perfluoroheptanoic acid (PFHpA)	<0.20		0.20		ug/Kg		01/24/22 11:51	01/28/22 11:26	1
Perfluorohexanesulfonic acid (PFHxS)	<0.20		0.20		ug/Kg		01/24/22 11:51	01/28/22 11:26	1
Perfluorohexanoic acid (PFHxA)	<0.20		0.20		ug/Kg		01/24/22 11:51	01/28/22 11:26	1
Perfluorononanesulfonic acid (PFNS)	<0.20		0.20		ug/Kg		01/24/22 11:51	01/28/22 11:26	1
Perfluorononanoic acid (PFNA)	<0.20		0.20		ug/Kg		01/24/22 11:51	01/28/22 11:26	1
Perfluorooctanesulfonamide (FOSA)	<0.20		0.20		ug/Kg		01/24/22 11:51	01/28/22 11:26	1
Perfluorooctanesulfonic acid (PFOS)	<0.20		0.20		ug/Kg		01/24/22 11:51	01/28/22 11:26	1
Perfluorooctanoic acid (PFOA)	<0.20		0.20		ug/Kg		01/24/22 11:51	01/28/22 11:26	1
Perfluoropentanesulfonic acid (PFPeS)	<0.20		0.20		ug/Kg		01/24/22 11:51	01/28/22 11:26	1
Perfluoropentanoic acid (PFPeA)	<0.20		0.20		ug/Kg		01/24/22 11:51	01/28/22 11:26	1
Perfluorotetradecanoic acid (PFTeA)	<0.20		0.20		ug/Kg		01/24/22 11:51	01/28/22 11:26	1
Perfluorotridecanoic acid (PFTriA)	<0.20		0.20		ug/Kg		01/24/22 11:51	01/28/22 11:26	1
Perfluoroundecanoic acid (PFUnA)	<0.20		0.20		ug/Kg		01/24/22 11:51	01/28/22 11:26	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*105*		*25 - 150*	*01/24/22 11:51*	*01/28/22 11:26*	*1*
13C3 HFPO-DA	*96*		*25 - 150*	*01/24/22 11:51*	*01/28/22 11:26*	*1*
13C4 PFBA	*79*		*25 - 150*	*01/24/22 11:51*	*01/28/22 11:26*	*1*
13C3 PFBS	*108*		*25 - 150*	*01/24/22 11:51*	*01/28/22 11:26*	*1*
13C2 PFDA	*102*		*25 - 150*	*01/24/22 11:51*	*01/28/22 11:26*	*1*
13C2 PFDoA	*97*		*25 - 150*	*01/24/22 11:51*	*01/28/22 11:26*	*1*
13C4 PFHpA	*106*		*25 - 150*	*01/24/22 11:51*	*01/28/22 11:26*	*1*
13C2 PFHxA	*98*		*25 - 150*	*01/24/22 11:51*	*01/28/22 11:26*	*1*
13C5 PFNA	*106*		*25 - 150*	*01/24/22 11:51*	*01/28/22 11:26*	*1*
13C4 PFOA	*104*		*25 - 150*	*01/24/22 11:51*	*01/28/22 11:26*	*1*
13C4 PFOS	*108*		*25 - 150*	*01/24/22 11:51*	*01/28/22 11:26*	*1*
13C5 PFPeA	*102*		*25 - 150*	*01/24/22 11:51*	*01/28/22 11:26*	*1*
13C2 PFTeDA	*106*		*25 - 150*	*01/24/22 11:51*	*01/28/22 11:26*	*1*
13C2 PFUnA	*99*		*25 - 150*	*01/24/22 11:51*	*01/28/22 11:26*	*1*
d5-NEtFOSAA	*104*		*25 - 150*	*01/24/22 11:51*	*01/28/22 11:26*	*1*

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

Lab Sample ID: MB 320-560158/1-A
Matrix: Solid
Analysis Batch: 561300

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 560158

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
d3-NMeFOSAA	99		25 - 150	01/24/22 11:51	01/28/22 11:26	1
M2-4:2 FTS	84		25 - 150	01/24/22 11:51	01/28/22 11:26	1
M2-6:2 FTS	87		25 - 150	01/24/22 11:51	01/28/22 11:26	1
M2-8:2 FTS	85		25 - 150	01/24/22 11:51	01/28/22 11:26	1
18O2 PFHxS	109		25 - 150	01/24/22 11:51	01/28/22 11:26	1

Lab Sample ID: LCS 320-560158/2-A
Matrix: Solid
Analysis Batch: 561300

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 560158

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	1.88	1.72		ug/Kg		91	79 - 139
F-53B Major	1.86	1.61		ug/Kg		86	74 - 134
F-53B Minor	1.88	1.67		ug/Kg		89	66 - 136
4:2 FTS	1.87	1.70		ug/Kg		91	68 - 143
6:2 FTS	1.90	1.87		ug/Kg		99	73 - 139
8:2 FTS	1.92	1.80		ug/Kg		94	75 - 135
HFPO-DA (GenX)	2.00	1.97		ug/Kg		99	53 - 158
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	2.00	1.69		ug/Kg		84	72 - 132
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	2.00	1.68		ug/Kg		84	72 - 132
Perfluorobutanesulfonic acid (PFBS)	1.77	1.72		ug/Kg		97	69 - 129
Perfluorobutanoic acid (PFBA)	2.00	1.82		ug/Kg		91	76 - 136
Perfluorodecanesulfonic acid (PFDS)	1.93	1.72		ug/Kg		89	71 - 131
Perfluorodecanoic acid (PFDA)	2.00	1.62		ug/Kg		81	72 - 132
Perfluorododecanoic acid (PFDoA)	2.00	1.88		ug/Kg		94	71 - 131
Perfluoroheptanesulfonic Acid (PFHpS)	1.90	1.75		ug/Kg		92	76 - 136
Perfluoroheptanoic acid (PFHpA)	2.00	1.90		ug/Kg		95	71 - 131
Perfluorohexanesulfonic acid (PFHxS)	1.82	1.61		ug/Kg		89	62 - 122
Perfluorohexanoic acid (PFHxA)	2.00	1.91		ug/Kg		95	71 - 131
Perfluorononanesulfonic acid (PFNS)	1.92	1.79		ug/Kg		93	72 - 132
Perfluorononanoic acid (PFNA)	2.00	1.93		ug/Kg		97	73 - 133
Perfluorooctanesulfonamide (FOSA)	2.00	1.87		ug/Kg		94	77 - 137
Perfluorooctanesulfonic acid (PFOS)	1.86	1.61		ug/Kg		87	68 - 141
Perfluorooctanoic acid (PFOA)	2.00	1.84		ug/Kg		92	72 - 132
Perfluoropentanesulfonic acid (PFPeS)	1.88	1.71		ug/Kg		91	66 - 126
Perfluoropentanoic acid (PFPeA)	2.00	1.79		ug/Kg		89	69 - 129
Perfluorotetradecanoic acid (PFTeA)	2.00	1.93		ug/Kg		96	67 - 127
Perfluorotridecanoic acid (PFTriA)	2.00	2.03		ug/Kg		101	71 - 131

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

Lab Sample ID: LCS 320-560158/2-A
Matrix: Solid
Analysis Batch: 561300

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 560158

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Perfluoroundecanoic acid (PFUnA)			2.00	1.83		ug/Kg		92	66 - 126		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C8 FOSA	*106*		*25 - 150*
13C3 HFPO-DA	*98*		*25 - 150*
13C4 PFBA	*82*		*25 - 150*
13C3 PFBS	*106*		*25 - 150*
13C2 PFDA	*102*		*25 - 150*
13C2 PFDoA	*99*		*25 - 150*
13C4 PFHpA	*102*		*25 - 150*
13C2 PFHxA	*100*		*25 - 150*
13C5 PFNA	*106*		*25 - 150*
13C4 PFOA	*107*		*25 - 150*
13C4 PFOS	*115*		*25 - 150*
13C5 PFPeA	*104*		*25 - 150*
13C2 PFTeDA	*97*		*25 - 150*
13C2 PFUnA	*101*		*25 - 150*
d5-NEtFOSAA	*104*		*25 - 150*
d3-NMeFOSAA	*98*		*25 - 150*
M2-4:2 FTS	*84*		*25 - 150*
M2-6:2 FTS	*84*		*25 - 150*
M2-8:2 FTS	*80*		*25 - 150*
18O2 PFHxS	*110*		*25 - 150*

Isotope Dilution Summary

Client: City of Brighton
Project/Site: City of Brighton WWTP PFAS

Job ID: 190-27798-1

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)
190-27798-1	SLUDGE STORAGE	87	65	71	64	90	82	79	55
LCS 320-560158/2-A	Lab Control Sample	106	98	82	106	102	99	102	100
MB 320-560158/1-A	Method Blank	105	96	79	108	102	97	106	98

		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)
190-27798-1	SLUDGE STORAGE	94	97	90	78	77	81	91	87
LCS 320-560158/2-A	Lab Control Sample	106	107	115	104	97	101	104	98
MB 320-560158/1-A	Method Blank	106	104	108	102	106	99	104	99

		Percent Isotope Dilution Recovery (Acceptance Limits)			
		M242FTS	M262FTS	M282FTS	PFHxS
Lab Sample ID	Client Sample ID	(25-150)	(25-150)	(25-150)	(25-150)
190-27798-1	SLUDGE STORAGE	80	136	164 *5+	88
LCS 320-560158/2-A	Lab Control Sample	84	84	80	110
MB 320-560158/1-A	Method Blank	84	87	85	109

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
Job ID: 190-27798-1
Project/Site: City of Brighton WWTP PFAS

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.
¤	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

Address: MICHIGAN 190

Chain of Custody Record 565835

eurofins | Environment Testing TestAmerica

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

TAL-8210

Client Contact	Project Manager: CORBY BROOKS	Site Contact:	Date:	COC No:
Company Name: CITY OF BRIGHTON	Tel/Email: BROOKSC@BRIGHTONCITY.ORG	Lab Contact:	Carrier:	____ of ____ COCs
Address: 200 N FIRST	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: (810) 227-7635	☐ 2 weeks			Lab Sampling:
Project Name: CITY OF BRIGHTON PFAS	☐ 1 week			
Site: CITY OF BRIGHTON WWTP	☐ 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	1/18/22	1230	G					X	*	ANALYZE AS A SOLID WITH DRY WEIGHT CORRECTION

190-27798 Chain of Custody

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.:____

	Company:	Date/Time:		Company:	Date/Time:
Relinquished by:		1-18-22 1309	Received by:	Eurofins	1-18-22 1310
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

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2/7/2022

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☐ SDS or Known Hazard Information Supplied by Client
☐ Discrepancies
☐ Short Hold
Client ID: City of Brighton
Work Oder #: 190-27798
☐ Rush ☐ 24 Hr ☐ 2-Day ☐ 3-Day ☐ 5-Day ☐ Other: _____
Receipt Evaluation Performed by: Initials: TCH Date: 1-18-22 Time: 1310

Cooler / Sample Receipt

After hours receipt: complete gray areas. Place cooler in walk-in, place form in Receiving box. Date: _____ Time: _____

Method of Shipment:
Walk-In Client ☐ Eurofins TA Field/Courier
Other Client / 3rd Party Courier: _____
Fed Ex Tracking #: _____
UPS Tracking #: _____
Other: _____

Shipping Container Type:
☑ Cooler ☐ Box
☐ None ☐ Other: _____

Custody Seals Intact:
☐ Yes ☐ No
☑ NA (not used or required)

Packing Materials:
☐ Plastic Bags ☐ Foam
☑ Bubble Wrap ☐ Paper
☐ Packing Peanuts ☐ None
☐ Other: _____

Cooling Materials:
☑ Ice (Solid) ☐ Ice (Melted)
☐ Blue Ice ☐ None
☐ Other: _____

Bacteriological Samples	Temp Corrected (°C)	Frozen? Yes	Frozen? No	Rec'd Within 2 Hrs? Yes	Rec'd Within 2 Hrs? No	Sample Flagged? Yes	Sample Flagged? No

Received on same day sampled? Yes No Additional Sheets Required? Yes No

Receipt Temperatures

Thermometer ID	Observed (°C)	Corrected (°C)	Temp Blank	Sample Temp	Acceptable	Cooler ID	Affected Samples
CP313209	10.9	10.9		✓	✓Y __N		Received same day collected.
					__Y __N		
					__Y __N		

Receipt Questions**	Y	N	NA	"No" answers require additional comment
CoC present and ETA receipt signature, date, and time properly documented?	✓			
Containers and Labels in good condition? *(unbroken, not leaking, appropriately filled, labels legible & attached)*	✓			
Appropriate containers used and adequate volume provided?	✓			Preserved bottles checked for pH?* Yes No
Number of sample containers match CoC?	✓			pH strip lot # _____
Samples received within hold?	✓			
Samples submitted for GRO and Volatiles analysis (8260, 624, 524) received without headspace?			✓	
Was a Trip Blank received with VOA samples?			✓	
Were the samples free of any questionable physical conformities? (i.e.; field duplicates or multiple bottles of the same sample do not significantly vary in appearance – color, solid proportions, etc.)	✓			
Were the CoC bottle labels and all other items free of all other discrepancies or issues that would need to be addressed with the Project Manager and/or Client?	✓			
**May not be applicable if samples are not for compliance testing				*Excludes FOG, VOAs, TOC Vials, HEM

Client Contact Record

Contact Via: ☐ Phone ☐ Email ☐ Other: _____ Person Contacted: _____ Date/Time: _____
☐ Discrepancy allowance agreement is on record in the client project file

Discussion / Resolution

Any additional documentation and clarification from the client must be noted in the narrative and/or scanned into the CoC directory.

Reviewed by _____ Date: 1-18-22

WI-MI-010_020720

Eurofins Michigan
10448 Citation Drive Suite 200
Brighton, MI 48116
Phone: 810-229-2763 Fax: 810-229-0000

Chain of Custody Record

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Client Information (Sub Contract Lab)	Sampler:	Lab PM: Schafer, Sue	Carrier Tracking No(s):	COC No: 190-31258.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Sue.Schafer@Eurofinset.com	State of Origin: Michigan	Page: Page 1 of 1
Company: Eurofins Environment Testing Northern Ca		Accreditations Required (See note):		Job #: 190-27798-1
Address: 880 Riverside Parkway, ,	Due Date Requested: 2/14/2022			
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 PFAS	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)	Moisture/ Percent Moisture	PFC_IDA/Shake_Bath_14D PFAS 28	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
SLUDGE STORAGE (190-27798-1)	1/18/22	12:30 Eastern		Solid			X	X	2	

Note: Since laboratory accreditations are subject to change, Eurofins North Central 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 North Central laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins North Central attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins North Central.

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	Jen Hale	1-18-22 1700			1/19/22 9:20	EEBTAN
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: Ø Custody Seal No.: 1826774

Cooler Temperature(s) °C and Other Remarks: 2.7

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QC Association Summary

Client: City of Brighton
Project/Site: City of Brighton WWTP PFAS

Job ID: 190-27798-1

LCMS

Prep Batch: 560158

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-27798-1	SLUDGE STORAGE	Total/NA	Solid	SHAKE	
MB 320-560158/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-560158/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	

Analysis Batch: 561300

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 320-560158/1-A	Method Blank	Total/NA	Solid	537 (modified)	560158
LCS 320-560158/2-A	Lab Control Sample	Total/NA	Solid	537 (modified)	560158

Analysis Batch: 562105

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-27798-1	SLUDGE STORAGE	Total/NA	Solid	537 (modified)	560158

General Chemistry

Analysis Batch: 559137

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-27798-1	SLUDGE STORAGE	Total/NA	Solid	D 2216	

Lab Chronicle

Client: City of Brighton
Job ID: 190-27798-1
Project/Site: City of Brighton WWTP PFAS

Client Sample ID: SLUDGE STORAGE
Lab Sample ID: 190-27798-1
Date Collected: 01/18/22 12:30
Matrix: Solid
Date Received: 01/18/22 13:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D 2216		1	559137	01/19/22 14:30	JCB	TAL SAC

Client Sample ID: SLUDGE STORAGE
Lab Sample ID: 190-27798-1
Date Collected: 01/18/22 12:30
Matrix: Solid
Date Received: 01/18/22 13:10
Percent Solids: 6.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			560158	01/24/22 11:51	OP	TAL SAC
Total/NA	Analysis	537 (modified)		1	562105	01/31/22 20:23	RS1	TAL SAC

Laboratory References:

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

Analyst References:

Lab: TAL SAC

Batch Type: Prep

OP = Oscar Pascual-Diaz

Batch Type: Analysis

JCB = Jason Baynes

RS1 = Rungtip Sanjumnai