



ANALYTICAL REPORT

Lab Number:	L2019978
Client:	Massachusetts DEP Central Regional Office 8 New Bond Street Worcester, MA 01608
ATTN:	Robert Bostwick
Phone:	(508) 849-4036
Project Name:	EQE-5000-PFASLABSERVCSBWR2020
Project Number:	TASK ORDER #4 218700
Report Date:	05/21/20

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Project Name: EQE-5000-PFASLABSERVCSBWR2020

Project Number: TASK ORDER #4 218700

Lab Number: L2019978

Report Date: 05/21/20

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2019978-01	(RW) 01G WELL#1	DW	MILLIS MA	05/14/20 10:37	05/14/20
L2019978-02	(RW) 01G FB	DW	MILLIS MA	05/14/20 10:33	05/14/20
L2019978-03	(RW) 02G WELL#2	DW	MILLIS MA	05/14/20 11:06	05/14/20
L2019978-04	(RW) 02G FB	DW	MILLIS MA	05/14/20 11:03	05/14/20
L2019978-05	(F) MULTI 1 D'ANGELIS	DW	MILLIS MA	05/14/20 11:27	05/14/20
L2019978-06	MULTI 1 FB	DW	MILLIS MA	05/14/20 11:21	05/14/20
L2019978-07	(F) 03G VILLAGE	DW	MILLIS MA	05/14/20 09:23	05/14/20
L2019978-08	03G FB	DW	MILLIS MA	05/14/20 09:20	05/14/20
L2019978-09	(F) 04G SOUTH END	DW	MILLIS MA	05/14/20 08:45	05/14/20
L2019978-10	04G F/B	DW	MILLIS MA	05/14/20 08:42	05/14/20
L2019978-11	(F) 05G PAINE	DW	MILLIS MA	05/14/20 09:59	05/14/20
L2019978-12	05G FB	DW	MILLIS MA	05/14/20 09:55	05/14/20

Project Name: EQE-5000-PFASLABSERVCSBWR2020
Project Number: TASK ORDER #4 218700

Lab Number: L2019978
Report Date: 05/21/20

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: EQE-5000-PFASLABSERVCSBWR2020
Project Number: TASK ORDER #4 218700

Lab Number: L2019978
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Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:



Alycia Mogayzel

Title: Technical Director/Representative

Date: 05/21/20

ORGANICS

SEMIVOLATILES

Project Name: EQE-5000-PFASLABSERVCSBWR2020
Project Number: TASK ORDER #4 218700

Lab Number: L2019978
Report Date: 05/21/20

SAMPLE RESULTS

Lab ID: L2019978-01
Client ID: (RW) 01G WELL#1
Sample Location: MILLIS MA

Date Collected: 05/14/20 10:37
Date Received: 05/14/20
Field Prep: Not Specified

Sample Depth:

Matrix: Dw
Analytical Method: 133,537.1
Analytical Date: 05/18/20 14:55
Analyst: JW

Extraction Method: EPA 537
Extraction Date: 05/15/20 19:00

PFAS6: PFHpA, PFHxS, PFOA, PFNA, PFOS, PFDA
Total: 18.2

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	2.58		ng/l	1.82	0.258	1
Perfluorohexanoic Acid (PFHxA)	5.05		ng/l	1.82	0.239	1
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND		ng/l	3.64	0.411	1
Perfluoroheptanoic Acid (PFHpA)	2.25		ng/l	1.82	0.236	1
Perfluorohexanesulfonic Acid (PFHxS)	4.11		ng/l	1.82	0.436	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	1.82	0.065	1
Perfluorooctanoic Acid (PFOA)	4.00		ng/l	1.82	0.567	1
Perfluorononanoic Acid (PFNA)	2.94		ng/l	1.82	0.433	1
Perfluorooctanesulfonic Acid (PFOS)	4.94		ng/l	1.82	0.447	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.82	0.585	1
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	1.82	0.250	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.82	0.851	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.82	0.742	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.82	0.865	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.82	0.589	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	1.82	0.191	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.82	0.462	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.82	0.393	1
PFOA/PFOS, Total	8.94		ng/l	1.82	0.447	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	102		70-130
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	97		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	94		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	104		70-130

Project Name: EQE-5000-PFASLABSERVCSBWR2020
Project Number: TASK ORDER #4 218700

Lab Number: L2019978
Report Date: 05/21/20

SAMPLE RESULTS

Lab ID: L2019978-02
Client ID: (RW) 01G FB
Sample Location: MILLIS MA

Date Collected: 05/14/20 10:33
Date Received: 05/14/20
Field Prep: Not Specified

Sample Depth:

Matrix: Dw
Analytical Method: 133,537.1
Analytical Date: 05/18/20 15:13
Analyst: JW

Extraction Method: EPA 537
Extraction Date: 05/15/20 19:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.83	0.260	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.83	0.241	1
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND		ng/l	3.66	0.414	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.83	0.238	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.83	0.440	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	1.83	0.066	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.83	0.571	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.83	0.436	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.83	0.450	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.83	0.590	1
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	1.83	0.252	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.83	0.857	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.83	0.747	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.83	0.872	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.83	0.593	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	1.83	0.192	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.83	0.465	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.83	0.396	1
PFOA/PFOS, Total	ND		ng/l	1.83	0.450	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	94		70-130
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	94		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	98		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	104		70-130

Project Name: EQE-5000-PFASLABSERVCSBWR2020
Project Number: TASK ORDER #4 218700

Lab Number: L2019978
Report Date: 05/21/20

SAMPLE RESULTS

Lab ID: L2019978-03
Client ID: (RW) 02G WELL#2
Sample Location: MILLIS MA

Date Collected: 05/14/20 11:06
Date Received: 05/14/20
Field Prep: Not Specified

Sample Depth:

Matrix: Dw
Analytical Method: 133,537.1
Analytical Date: 05/18/20 15:21
Analyst: JW

Extraction Method: EPA 537
Extraction Date: 05/15/20 19:00

PFAS6: PFHpA, PFHxS, PFOA, PFNA, PFOS, PFDA
Total: 17.2

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	2.36		ng/l	1.81	0.257	1
Perfluorohexanoic Acid (PFHxA)	3.77		ng/l	1.81	0.238	1
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND		ng/l	3.62	0.409	1
Perfluoroheptanoic Acid (PFHpA)	1.88		ng/l	1.81	0.236	1
Perfluorohexanesulfonic Acid (PFHxS)	3.80		ng/l	1.81	0.435	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	1.81	0.065	1
Perfluorooctanoic Acid (PFOA)	4.24		ng/l	1.81	0.565	1
Perfluorononanoic Acid (PFNA)	2.25		ng/l	1.81	0.431	1
Perfluorooctanesulfonic Acid (PFOS)	5.04		ng/l	1.81	0.446	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.81	0.583	1
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	1.81	0.249	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.81	0.848	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.81	0.739	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.81	0.862	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.81	0.587	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	1.81	0.190	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.81	0.460	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.81	0.391	1
PFOA/PFOS, Total	9.28		ng/l	1.81	0.446	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	96		70-130
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	87		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	97		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	104		70-130

Project Name: EQE-5000-PFASLABSERVCSBWR2020
Project Number: TASK ORDER #4 218700

Lab Number: L2019978
Report Date: 05/21/20

SAMPLE RESULTS

Lab ID: L2019978-04
Client ID: (RW) 02G FB
Sample Location: MILLIS MA

Date Collected: 05/14/20 11:03
Date Received: 05/14/20
Field Prep: Not Specified

Sample Depth:

Matrix: Dw
Analytical Method: 133,537.1
Analytical Date: 05/18/20 15:39
Analyst: JW

Extraction Method: EPA 537
Extraction Date: 05/15/20 19:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.86	0.264	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.86	0.245	1
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND		ng/l	3.72	0.420	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.86	0.242	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.86	0.446	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	1.86	0.067	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.86	0.580	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.86	0.442	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.86	0.457	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.86	0.598	1
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	1.86	0.256	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.86	0.870	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.86	0.758	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.86	0.885	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.86	0.602	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	1.86	0.195	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.86	0.472	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.86	0.401	1
PFOA/PFOS, Total	ND		ng/l	1.86	0.457	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	103		70-130
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	104		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	105		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	120		70-130

Project Name: EQE-5000-PFASLABSERVCSBWR2020
Project Number: TASK ORDER #4 218700

Lab Number: L2019978
Report Date: 05/21/20

SAMPLE RESULTS

Lab ID: L2019978-05
Client ID: (F) MULTI 1 D'ANGELIS
Sample Location: MILLIS MA

Date Collected: 05/14/20 11:27
Date Received: 05/14/20
Field Prep: Not Specified

Sample Depth:

Matrix: Dw
Analytical Method: 133,537.1
Analytical Date: 05/18/20 15:47
Analyst: JW

Extraction Method: EPA 537
Extraction Date: 05/15/20 19:00

PFAS6: PFHpA, PFHxS, PFOA, PFNA, PFOS, PFDA
Total: 17.1

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	2.40		ng/l	1.82	0.258	1
Perfluorohexanoic Acid (PFHxA)	4.40		ng/l	1.82	0.239	1
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND		ng/l	3.64	0.411	1
Perfluoroheptanoic Acid (PFHpA)	2.25		ng/l	1.82	0.236	1
Perfluorohexanesulfonic Acid (PFHxS)	3.85		ng/l	1.82	0.436	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	1.82	0.065	1
Perfluorooctanoic Acid (PFOA)	3.89		ng/l	1.82	0.567	1
Perfluorononanoic Acid (PFNA)	2.44		ng/l	1.82	0.433	1
Perfluorooctanesulfonic Acid (PFOS)	4.69		ng/l	1.82	0.447	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.82	0.585	1
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	1.82	0.250	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.82	0.851	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.82	0.742	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.82	0.865	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.82	0.589	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	1.82	0.191	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.82	0.462	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.82	0.393	1
PFOA/PFOS, Total	8.58		ng/l	1.82	0.447	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	98		70-130
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	92		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	94		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	108		70-130

Project Name: EQE-5000-PFASLABSERVCSBWR2020
Project Number: TASK ORDER #4 218700

Lab Number: L2019978
Report Date: 05/21/20

SAMPLE RESULTS

Lab ID: L2019978-06
Client ID: MULTI 1 FB
Sample Location: MILLIS MA

Date Collected: 05/14/20 11:21
Date Received: 05/14/20
Field Prep: Not Specified

Sample Depth:

Matrix: Dw
Analytical Method: 133,537.1
Analytical Date: 05/18/20 15:56
Analyst: JW

Extraction Method: EPA 537
Extraction Date: 05/15/20 19:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.84	0.262	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.84	0.243	1
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND		ng/l	3.69	0.417	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.84	0.240	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.84	0.443	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	1.84	0.066	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.84	0.576	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.84	0.439	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.84	0.454	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.84	0.594	1
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	1.84	0.254	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.84	0.863	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.84	0.753	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.84	0.878	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.84	0.598	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	1.84	0.194	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.84	0.469	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.84	0.398	1
PFOA/PFOS, Total	ND		ng/l	1.84	0.454	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	93		70-130
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	94		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	98		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	113		70-130

Project Name: EQE-5000-PFASLABSERVCSBWR2020
Project Number: TASK ORDER #4 218700

Lab Number: L2019978
Report Date: 05/21/20

SAMPLE RESULTS

Lab ID: L2019978-07
Client ID: (F) 03G VILLAGE
Sample Location: MILLIS MA

Date Collected: 05/14/20 09:23
Date Received: 05/14/20
Field Prep: Not Specified

Sample Depth:

Matrix: Dw
Analytical Method: 133,537.1
Analytical Date: 05/18/20 16:04
Analyst: JW

Extraction Method: EPA 537
Extraction Date: 05/15/20 19:00

PFAS6: PFHpA, PFHxS, PFOA, PFNA, PFOS, PFDA
Total: 15.0

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	5.04		ng/l	1.81	0.257	1
Perfluorohexanoic Acid (PFHxA)	2.03		ng/l	1.81	0.238	1
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND		ng/l	3.62	0.409	1
Perfluoroheptanoic Acid (PFHpA)	1.30	J	ng/l	1.81	0.236	1
Perfluorohexanesulfonic Acid (PFHxS)	1.67	J	ng/l	1.81	0.435	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	1.81	0.065	1
Perfluorooctanoic Acid (PFOA)	4.75		ng/l	1.81	0.565	1
Perfluorononanoic Acid (PFNA)	0.507	J	ng/l	1.81	0.431	1
Perfluorooctanesulfonic Acid (PFOS)	6.81		ng/l	1.81	0.446	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.81	0.583	1
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	1.81	0.249	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.81	0.848	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.81	0.739	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.81	0.862	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.81	0.587	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	1.81	0.190	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.81	0.460	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.81	0.391	1
PFOA/PFOS, Total	11.6		ng/l	1.81	0.446	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	95		70-130
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	86		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	96		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	105		70-130

Project Name: EQE-5000-PFASLABSERVCSBWR2020
Project Number: TASK ORDER #4 218700

Lab Number: L2019978
Report Date: 05/21/20

SAMPLE RESULTS

Lab ID: L2019978-08
Client ID: 03G FB
Sample Location: MILLIS MA

Date Collected: 05/14/20 09:20
Date Received: 05/14/20
Field Prep: Not Specified

Sample Depth:

Matrix: Dw
Analytical Method: 133,537.1
Analytical Date: 05/18/20 16:13
Analyst: JW

Extraction Method: EPA 537
Extraction Date: 05/15/20 19:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.87	0.266	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.87	0.246	1
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND		ng/l	3.74	0.423	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.87	0.243	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.87	0.449	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	1.87	0.067	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.87	0.584	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.87	0.446	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.87	0.461	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.87	0.603	1
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	1.87	0.258	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.87	0.876	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.87	0.764	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.87	0.891	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.87	0.607	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	1.87	0.197	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.87	0.476	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.87	0.404	1
PFOA/PFOS, Total	ND		ng/l	1.87	0.461	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	98		70-130
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	94		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	97		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	107		70-130

Project Name: EQE-5000-PFASLABSERVCSBWR2020
Project Number: TASK ORDER #4 218700

Lab Number: L2019978
Report Date: 05/21/20

SAMPLE RESULTS

Lab ID: L2019978-09
Client ID: (F) 04G SOUTH END
Sample Location: MILLIS MA

Date Collected: 05/14/20 08:45
Date Received: 05/14/20
Field Prep: Not Specified

Sample Depth:

Matrix: Dw
Analytical Method: 133,537.1
Analytical Date: 05/18/20 16:22
Analyst: JW

Extraction Method: EPA 537
Extraction Date: 05/15/20 19:00

PFAS6: PFHpA, PFHxS, PFOA, PFNA, PFOS, PFDA
Total: 7.9

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	0.949	J	ng/l	1.82	0.259	1
Perfluorohexanoic Acid (PFHxA)	0.912	J	ng/l	1.82	0.240	1
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND		ng/l	3.65	0.412	1
Perfluoroheptanoic Acid (PFHpA)	0.766	J	ng/l	1.82	0.237	1
Perfluorohexanesulfonic Acid (PFHxS)	1.93		ng/l	1.82	0.438	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	1.82	0.065	1
Perfluorooctanoic Acid (PFOA)	3.61		ng/l	1.82	0.569	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.82	0.434	1
Perfluorooctanesulfonic Acid (PFOS)	1.64	J	ng/l	1.82	0.449	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.82	0.588	1
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	1.82	0.251	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.82	0.854	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.82	0.744	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.82	0.869	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.82	0.591	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	1.82	0.192	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.82	0.464	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.82	0.394	1
PFOA/PFOS, Total	5.25	J	ng/l	1.82	0.449	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	98		70-130
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	87		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	98		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	109		70-130

Project Name: EQE-5000-PFASLABSERVCSBWR2020
Project Number: TASK ORDER #4 218700

Lab Number: L2019978
Report Date: 05/21/20

SAMPLE RESULTS

Lab ID: L2019978-10
Client ID: 04G F/B
Sample Location: MILLIS MA

Date Collected: 05/14/20 08:42
Date Received: 05/14/20
Field Prep: Not Specified

Sample Depth:

Matrix: Dw
Analytical Method: 133,537.1
Analytical Date: 05/18/20 16:30
Analyst: JW

Extraction Method: EPA 537
Extraction Date: 05/15/20 19:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.84	0.262	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.84	0.243	1
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND		ng/l	3.69	0.417	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.84	0.240	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.84	0.443	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	1.84	0.066	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.84	0.576	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.84	0.439	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.84	0.454	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.84	0.594	1
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	1.84	0.254	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.84	0.863	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.84	0.753	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.84	0.878	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.84	0.598	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	1.84	0.194	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.84	0.469	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.84	0.398	1
PFOA/PFOS, Total	ND		ng/l	1.84	0.454	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	93		70-130
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	93		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	102		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	108		70-130

Project Name: EQE-5000-PFASLABSERVCSBWR2020
Project Number: TASK ORDER #4 218700

Lab Number: L2019978
Report Date: 05/21/20

SAMPLE RESULTS

Lab ID: L2019978-11
Client ID: (F) 05G PAINE
Sample Location: MILLIS MA

Date Collected: 05/14/20 09:59
Date Received: 05/14/20
Field Prep: Not Specified

Sample Depth:

Matrix: Dw
Analytical Method: 133,537.1
Analytical Date: 05/20/20 15:18
Analyst: SH

Extraction Method: EPA 537
Extraction Date: 05/15/20 19:00

PFAS6: PFHpA, PFHxS, PFOA, PFNA, PFOS, PFDA
Total: 5.4

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	0.766	J	ng/l	1.82	0.259	1
Perfluorohexanoic Acid (PFHxA)	0.365	J	ng/l	1.82	0.240	1
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND		ng/l	3.65	0.412	1
Perfluoroheptanoic Acid (PFHpA)	0.365	J	ng/l	1.82	0.237	1
Perfluorohexanesulfonic Acid (PFHxS)	1.60	J	ng/l	1.82	0.438	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	1.82	0.065	1
Perfluorooctanoic Acid (PFOA)	1.35	J	ng/l	1.82	0.569	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.82	0.434	1
Perfluorooctanesulfonic Acid (PFOS)	2.04		ng/l	1.82	0.449	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.82	0.588	1
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	1.82	0.251	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.82	0.854	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.82	0.744	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.82	0.869	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.82	0.591	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	1.82	0.192	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.82	0.464	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.82	0.394	1
PFOA/PFOS, Total	3.39	J	ng/l	1.82	0.449	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	102		70-130
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	112		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	88		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	96		70-130

Project Name: EQE-5000-PFASLABSERVCSBWR2020
Project Number: TASK ORDER #4 218700

Lab Number: L2019978
Report Date: 05/21/20

SAMPLE RESULTS

Lab ID: L2019978-12
Client ID: 05G FB
Sample Location: MILLIS MA

Date Collected: 05/14/20 09:55
Date Received: 05/14/20
Field Prep: Not Specified

Sample Depth:

Matrix: Dw
Analytical Method: 133,537.1
Analytical Date: 05/20/20 15:27
Analyst: SH

Extraction Method: EPA 537
Extraction Date: 05/15/20 19:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab						
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.85	0.263	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.85	0.244	1
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND		ng/l	3.70	0.418	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.85	0.241	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.85	0.444	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	1.85	0.066	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.85	0.578	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.85	0.441	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.85	0.456	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.85	0.596	1
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	1.85	0.255	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.85	0.867	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.85	0.756	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.85	0.881	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.85	0.600	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	1.85	0.194	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.85	0.470	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.85	0.400	1
PFOA/PFOS, Total	ND		ng/l	1.85	0.456	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	97		70-130
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	110		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	96		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	113		70-130

Project Name: EQE-5000-PFASLABSERVCSBWR2020
Project Number: TASK ORDER #4 218700

Lab Number: L2019978
Report Date: 05/21/20

Method Blank Analysis Batch Quality Control

Analytical Method: 133,537.1
Analytical Date: 05/18/20 14:21
Analyst: JW

Extraction Method: EPA 537
Extraction Date: 05/15/20 19:00

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab for sample(s): 01-12 Batch: WG1371264-1					
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	0.284
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	2.00	0.263
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND		ng/l	4.00	0.452
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	0.260
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	0.480
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	2.00	0.072
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	0.624
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	0.476
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	0.492
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	0.644
9-Chlorohexadecafluoro-3-Oxane-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	2.00	0.275
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	0.936
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	0.816
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.00	0.952
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	0.648
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUDS)	ND		ng/l	2.00	0.210
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	0.508
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	0.432
PFOA/PFOS, Total	ND		ng/l	2.00	0.492

Project Name: EQE-5000-PFASLABSERVCSBWR2020
Project Number: TASK ORDER #4 218700

Lab Number: L2019978
Report Date: 05/21/20

**Method Blank Analysis
Batch Quality Control**

Analytical Method: 133,537.1
 Analytical Date: 05/18/20 14:21
 Analyst: JW

Extraction Method: EPA 537
 Extraction Date: 05/15/20 19:00

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab for sample(s): 01-12 Batch: WG1371264-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	90		70-130
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	91		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	111		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	109		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: EQE-5000-PFASLABSERVCSBWR2020

Lab Number: L2019978

Project Number: TASK ORDER #4 218700

Report Date: 05/21/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-12 Batch: WG1371264-2 WG1371264-3								
Perfluorobutanesulfonic Acid (PFBS)	110		113		70-130	3		30
Perfluorohexanoic Acid (PFHxA)	93		97		70-130	4		30
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	93		96		70-130	3		30
Perfluoroheptanoic Acid (PFHpA)	98		102		70-130	4		30
Perfluorohexanesulfonic Acid (PFHxS)	105		108		70-130	3		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	100		106		70-130	6		30
Perfluorooctanoic Acid (PFOA)	98		99		70-130	1		30
Perfluorononanoic Acid (PFNA)	86		94		70-130	9		30
Perfluorooctanesulfonic Acid (PFOS)	99		100		70-130	1		30
Perfluorodecanoic Acid (PFDA)	92		99		70-130	7		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	100		98		70-130	2		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	101		94		70-130	7		30
Perfluoroundecanoic Acid (PFUnA)	86		86		70-130	0		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	107		96		70-130	11		30
Perfluorododecanoic Acid (PFDoA)	114		119		70-130	4		30
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	91		96		70-130	5		30
Perfluorotridecanoic Acid (PFTTrDA)	106		112		70-130	6		30
Perfluorotetradecanoic Acid (PFTA)	87		92		70-130	6		30

Lab Control Sample Analysis**Batch Quality Control****Project Name:** EQE-5000-PFASLABSERVCSBWR2020**Lab Number:** L2019978**Project Number:** TASK ORDER #4 218700**Report Date:** 05/21/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-12 Batch: WG1371264-2 WG1371264-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	95		101		70-130
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	92		102		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	101		110		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	112		100		70-130

Matrix Spike Analysis

Batch Quality Control

Project Name: EQE-5000-PFASLABSERVCSBWR2020

Project Number: TASK ORDER #4 218700

Lab Number: L2019978

Report Date: 05/21/20

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab 01G WELL#1 Associated sample(s): 01-12 QC Batch ID: WG1371264-4 QC Sample: L2019978-01 Client ID: (RW)												
Perfluorobutanesulfonic Acid (PFBS)	2.58	128	152	117	-	-	-	-	70-130	-	-	30
Perfluorohexanoic Acid (PFHxA)	5.05	144	141	94	-	-	-	-	70-130	-	-	30
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND	144	128	89	-	-	-	-	70-130	-	-	30
Perfluoroheptanoic Acid (PFHpA)	2.25	144	155	106	-	-	-	-	70-130	-	-	30
Perfluorohexanesulfonic Acid (PFHxS)	4.11	132	150	111	-	-	-	-	70-130	-	-	30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	136	139	102	-	-	-	-	70-130	-	-	30
Perfluorooctanoic Acid (PFOA)	4.00	144	147	99	-	-	-	-	70-130	-	-	30
Perfluorononanoic Acid (PFNA)	2.94	144	124	84	-	-	-	-	70-130	-	-	30
Perfluorooctanesulfonic Acid (PFOS)	4.94	134	146	106	-	-	-	-	70-130	-	-	30
Perfluorodecanoic Acid (PFDA)	ND	144	139	96	-	-	-	-	70-130	-	-	30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	134	141	105	-	-	-	-	70-130	-	-	30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	144	150	104	-	-	-	-	70-130	-	-	30
Perfluoroundecanoic Acid (PFUnA)	ND	144	117	81	-	-	-	-	70-130	-	-	30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	144	157	109	-	-	-	-	70-130	-	-	30
Perfluorododecanoic Acid (PFDoA)	ND	144	150	104	-	-	-	-	70-130	-	-	30
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	136	130	96	-	-	-	-	70-130	-	-	30
Perfluorotridecanoic Acid (PFTrDA)	ND	144	146	101	-	-	-	-	70-130	-	-	30
Perfluorotetradecanoic Acid (PFTA)	ND	144	120	83	-	-	-	-	70-130	-	-	30

Matrix Spike Analysis**Batch Quality Control****Project Name:** EQE-5000-PFASLABSERVCSBWR2020**Lab Number:** L2019978**Project Number:** TASK ORDER #4 218700**Report Date:** 05/21/20

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-12 QC Batch ID: WG1371264-4 QC Sample: L2019978-01 Client ID: (RW) 01G WELL#1												

Surrogate	MS		MSD		Acceptance Criteria
	% Recovery	Qualifier	% Recovery	Qualifier	
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	86				70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	98				70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	92				70-130
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	89				70-130

Project Name: EQE-5000-PFASLABSERVCSBWR2020

Project Number: TASK ORDER #4 218700

Lab Duplicate Analysis Batch Quality Control

Lab Number: L2019978

Report Date: 05/21/20

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-12 QC Batch ID: WG1371264-5 QC Sample: L2019978-03 Client ID: (RW) 02G WELL#2						
Perfluorobutanesulfonic Acid (PFBS)	2.36	2.41	ng/l	2		30
Perfluorohexanoic Acid (PFHxA)	3.77	3.87	ng/l	3		30
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	ND	ND	ng/l	NC		30
Perfluoroheptanoic Acid (PFHpA)	1.88	1.97	ng/l	5		30
Perfluorohexanesulfonic Acid (PFHxS)	3.80	4.01	ng/l	5		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	ND	ng/l	NC		30
Perfluorooctanoic Acid (PFOA)	4.24	4.05	ng/l	5		30
Perfluorononanoic Acid (PFNA)	2.25	2.70	ng/l	18		30
Perfluorooctanesulfonic Acid (PFOS)	5.04	5.36	ng/l	6		30
Perfluorodecanoic Acid (PFDA)	ND	ND	ng/l	NC		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	ND	ng/l	NC		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	ND	ng/l	NC		30
Perfluoroundecanoic Acid (PFUnA)	ND	ND	ng/l	NC		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	ND	ng/l	NC		30
Perfluorododecanoic Acid (PFDoA)	ND	ND	ng/l	NC		30
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	ND	ng/l	NC		30
Perfluorotridecanoic Acid (PFTrDA)	ND	ND	ng/l	NC		30
Perfluorotetradecanoic Acid (PFTA)	ND	ND	ng/l	NC		30
PFOA/PFOS, Total	9.28	9.41	ng/l	1		30

Lab Duplicate Analysis Batch Quality Control

Project Name: EQE-5000-PFASLABSERVCSBWR2020

Project Number: TASK ORDER #4 218700

Lab Number: L2019978

Report Date: 05/21/20

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 537.1 - Mansfield Lab Associated sample(s): 01-12 QC Batch ID: WG1371264-5 QC Sample: L2019978-03 Client ID: (RW) 02G WELL#2						

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[1,2-13C2]hexanoic Acid (13C-PFHxA)	96		97		70-130
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-13C3-Propanoic Acid (M3HFPO-DA)	87		96		70-130
Perfluoro-n-[1,2-13C2]decanoic Acid (13C-PFDA)	97		105		70-130
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	104		107		70-130

Project Name: EQE-5000-PFASLABSERVCSBWR2020**Lab Number:** L2019978**Project Number:** TASK ORDER #4 218700**Report Date:** 05/21/20**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2019978-01A	2 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		4.2	Y	Absent		A2-537.1(14)
L2019978-01B	2 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		4.2	Y	Absent		A2-537.1(14)
L2019978-02A	2 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		4.2	Y	Absent		A2-537.1(14)
L2019978-03A	2 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		4.2	Y	Absent		A2-537.1(14)
L2019978-03B	2 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		4.2	Y	Absent		A2-537.1(14)
L2019978-04A	2 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		4.2	Y	Absent		A2-537.1(14)
L2019978-05A	2 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		4.2	Y	Absent		A2-537.1(14)
L2019978-05B	2 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		4.2	Y	Absent		A2-537.1(14)
L2019978-06A	2 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		4.2	Y	Absent		A2-537.1(14)
L2019978-07A	2 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		4.2	Y	Absent		A2-537.1(14)
L2019978-07B	2 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		4.2	Y	Absent		A2-537.1(14)
L2019978-08A	2 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		4.2	Y	Absent		A2-537.1(14)
L2019978-09A	2 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		4.2	Y	Absent		A2-537.1(14)
L2019978-09B	2 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		4.2	Y	Absent		A2-537.1(14)
L2019978-10A	2 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		4.2	Y	Absent		A2-537.1(14)
L2019978-11A	2 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		4.2	Y	Absent		A2-537.1(14)
L2019978-11B	2 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		4.2	Y	Absent		A2-537.1(14)
L2019978-12A	2 Plastic Trizma/1 Plastic/1 H2O+Trizma	A	NA		4.2	Y	Absent		A2-537.1(14)

Project Name: EQE-5000-PFASLABSERVCSBWR2020
Project Number: TASK ORDER #4 218700

Serial_No:05212014:46
Lab Number: L2019978
Report Date: 05/21/20

PFAS PARAMETER SUMMARY

Parameter	Acronym	CAS Number
PERFLUOROALKYL CARBOXYLIC ACIDS (PFCAs)		
Perfluorooctadecanoic Acid	PFODA	16517-11-6
Perfluorohexadecanoic Acid	PFHxDA	67905-19-5
Perfluorotetradecanoic Acid	PFTA	376-06-7
Perfluorotridecanoic Acid	PFTrDA	72629-94-8
Perfluorododecanoic Acid	PFDaA	307-55-1
Perfluoroundecanoic Acid	PFUnA	2058-94-8
Perfluorodecanoic Acid	PFDA	335-76-2
Perfluorononanoic Acid	PFNA	375-95-1
Perfluorooctanoic Acid	PFOA	335-67-1
Perfluoroheptanoic Acid	PFHpA	375-85-9
Perfluorohexanoic Acid	PFHxA	307-24-4
Perfluoropentanoic Acid	PFPeA	2706-90-3
Perfluorobutanoic Acid	PFBA	375-22-4
PERFLUOROALKYL SULFONIC ACIDS (PFSAs)		
Perfluorododecanesulfonic Acid	PFDaDS	79780-39-5
Perfluorodecanesulfonic Acid	PFDS	335-77-3
Perfluorononanesulfonic Acid	PFNS	68259-12-1
Perfluorooctanesulfonic Acid	PFOS	1763-23-1
Perfluoroheptanesulfonic Acid	PFHpS	375-92-8
Perfluorohexanesulfonic Acid	PFHxS	355-46-4
Perfluoropentanesulfonic Acid	PFPeS	2706-91-4
Perfluorobutanesulfonic Acid	PFBS	375-73-5
FLUOROTELOMERS		
1H,1H,2H,2H-Perfluorododecanesulfonic Acid	10:2FTS	120226-60-0
1H,1H,2H,2H-Perfluorodecanesulfonic Acid	8:2FTS	39108-34-4
1H,1H,2H,2H-Perfluorooctanesulfonic Acid	6:2FTS	27619-97-2
1H,1H,2H,2H-Perfluorohexanesulfonic Acid	4:2FTS	757124-72-4
PERFLUOROALKANE SULFONAMIDES (FASAs)		
Perfluorooctanesulfonamide	FOSA	754-91-6
N-Ethyl Perfluorooctane Sulfonamide	NEtFOSA	4151-50-2
N-Methyl Perfluorooctane Sulfonamide	NMeFOSA	31506-32-8
PERFLUOROALKANE SULFONYL SUBSTANCES		
N-Ethyl Perfluorooctanesulfonamido Ethanol	NEtFOSE	1691-99-2
N-Methyl Perfluorooctanesulfonamido Ethanol	NMeFOSE	24448-09-7
N-Ethyl Perfluorooctanesulfonamidoacetic Acid	NEtFOSAA	2991-50-6
N-Methyl Perfluorooctanesulfonamidoacetic Acid	NMeFOSAA	2355-31-9
PER- and POLYFLUOROALKYL ETHER CARBOXYLIC ACIDS		
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid	HFPO-DA	13252-13-6
4,8-Dioxa-3h-Perfluorononanoic Acid	ADONA	919005-14-4
CHLORO-PERFLUOROALKYL SULFONIC ACIDS		
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid	11Cl-PF3OUdS	763051-92-9
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid	9Cl-PF3ONS	756426-58-1

Project Name: EQE-5000-PFASLABSERVCSBWR2020
Project Number: TASK ORDER #4 218700

Lab Number: L2019978
Report Date: 05/21/20

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCS D	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
	Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers



Project Name: EQE-5000-PFASLABSERVCSBWR2020**Lab Number:** L2019978**Project Number:** TASK ORDER #4 218700**Report Date:** 05/21/20

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration

Report Format: DU Report with 'J' Qualifiers



Project Name: EQE-5000-PFASLABSERVCSBWR2020
Project Number: TASK ORDER #4 218700

Lab Number: L2019978
Report Date: 05/21/20

Data Qualifiers

Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

Project Name: EQE-5000-PFASLABSERVCSBWR2020
Project Number: TASK ORDER #4 218700

Lab Number: L2019978
Report Date: 05/21/20

REFERENCES

- 133 Determination of Selected Per- and Polyfluorinated Alkyl Substances in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS). EPA Method 537.1, EPA/600/R-18/352. Version 1.0, November 2018.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**

Revision 17

Published Date: 4/28/2020 9:42:21 AM

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Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility**EPA 624/624.1:** m/p-xylene, o-xylene, Naphthalene**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.**Mansfield Facility****SM 2540D:** TSS**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.**EPA TO-12** Non-methane organics**EPA 3C** Fixed gases**Biological Tissue Matrix:** EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:**Drinking Water****EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B****EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.****Non-Potable Water****SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:** Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.**EPA 624.1:** Volatile Halocarbons & Aromatics,**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.****Mansfield Facility:****Drinking Water****EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg. **EPA 522.****Non-Potable Water****EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.**EPA 245.1** Hg.**SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.



WESTBORO, MA
TEL: 508-896-9220
FAX: 508-896-9193

MANSFIELD, MA
TEL: 508-822-9300
FAX: 508-822-3288

CHAIN OF CUSTODY

PAGE _____ OF _____

Date Rec'd in Lab: 5/14/20

ALPHA Job #: L2019978

Project Information

Project Name: Millis Water Dept

Project Location: Millis MA

Project #:

Project Manager: J McKay

ALPHA Quote #:

Turn-Around Time

☒ Standard

☐ RUSH (only confirmed if pre-approved!)

Date Due:

Time:

Report Information - Data Deliverables

☐ FAX

☒ EMAIL

☐ ADEx

☐ Add'l Deliverables

☐ Same as Client info

PO #:

Regulatory Requirements/Report Limits

State/Fed Program

Criteria

Client Information

Client: Town of Millis

Address: 900 Main St
Millis, MA 02054

Phone: (508) 376-5434

Fax: (508) 376-2442

Email: JMcKay@MillisMA.gov

☐ These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

ALPHA Lab ID
(Lab Use Only)

Sample ID

Collection

Date

Time

Sample
Matrix

Sampler's
Initials

19978 -01	(RW) 01G Well #1	5/14	1037	DW RW	✓
-02	(RW) 01G FB	5/14	1033	DW RW	✓
-03	(RW) 02G Well #2	5/14	1106	DW RW	✓
-04	(RW) 02G FB	5/14	1103	DW RW	✓
-05	(F) Mulki 1 D'Angelis	5/14	1127	DW RW	✓
-06	Mulki 1 FB	5/14	1121	DW RW	✓
-07	(F) 03G Village	5/14	923	DW RW	✓
-08	03G FB	5/14	920	DW RW	✓
-09	(F) 04G South End	5/14	845	DW RW	✓
-10	04G F/B	5/14	842	DW RW	✓

ANALYSIS
192-537

SAMPLE HANDLING

Filtration

☐ Done

☐ Not needed

☐ Lab to do

Preservation

☐ Lab to do

(Please specify below)

Sample Specific Comments

TOTAL # BOTTLES

O = TRIZMA

A = NON

Container Type PP

Preservative OA

Relinquished By:

Date/Time

Received By:

Date/Time

