



ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

C. T. Male Associates
50 Century Hill Drive
Latham NY 12110

Report Date: September 17, 2018 15:33

Project: Hoosick Falls WTP

Account #: 37191
Group Number: 1984762
SDG: H0008
PO Number: 14.4756
State of Sample Origin: NY

Electronic Copy To	C. T. Male Associates	Attn: Kirk Moline
Electronic Copy To	C. T. Male Associates	Attn: Dan Reilly
Electronic Copy To	C. T. Male Associates	Attn: Jeff Marx
Electronic Copy To	Barr Engineering Company	Attn: Lauren Brady
Electronic Copy To	Environmental Standards	Attn: St. Gobain
Electronic Copy To	Barr Engineering Company	Attn: Data Mgt

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

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To view our laboratory's current scopes of accreditation please go to <http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>. Historical copies may be requested through your project manager.



SAMPLE INFORMATION

<u>Client Sample Description</u>	<u>Sample Collection Date/Time</u>	<u>ELLE#</u>
LTB-180906 Blank Water	09/06/2018	9792031
FTB-180906 Grab Blank Water	09/06/2018 09:55	9792032
GAC Influent Grab Drinking Water	09/06/2018 09:45	9792033
GAC Midfluent Grab Drinking Water	09/06/2018 09:47	9792034
GAC Effluent Grab Drinking Water	09/06/2018 09:40	9792035

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: Hoosick Falls WTP
ELLE Group #: 1984762

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

No additional comments are necessary.

Sample Description: LTB-180906 Blank Water
Hoosick Falls Water Treatment Plant

C. T. Male Associates
ELLE Sample #: PW 9792031
ELLE Group #: 1984762
Matrix: Blank Water

Project Name: Hoosick Falls WTP

Submittal Date/Time: 09/07/2018 10:10
Collection Date/Time: 09/06/2018
SDG#: H008-01TB

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous EPA 537 Version 1.1			ng/l	ng/l	
14070	NEtFOSAA NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.	2991-50-6	1.8 U	1.8	1
14070	NMeFOSAA NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.	2355-31-9	1.8 U	1.8	1
14070	Perfluorobutanesulfonate	375-73-5	1.8 U	1.8	1
14070	Perfluorodecanoic acid	335-76-2	1.8 U	1.8	1
14070	Perfluorododecanoic acid	307-55-1	1.8 U	1.8	1
14070	Perfluoroheptanoic acid	375-85-9	1.8 U	1.8	1
14070	Perfluorohexanesulfonate	355-46-4	1.8 U	1.8	1
14070	Perfluorohexanoic acid	307-24-4	1.8 U	1.8	1
14070	Perfluorononanoic acid	375-95-1	1.8 U	1.8	1
14070	Perfluoro-octanesulfonate	1763-23-1	1.8 U	1.8	1
14070	Perfluorooctanoic acid	335-67-1	1.8 U	1.8	1
14070	Perfluorotetradecanoic acid	376-06-7	1.8 U	1.8	1
14070	Perfluorotridecanoic acid	72629-94-8	1.8 U	1.8	1
14070	Perfluoroundecanoic acid	2058-94-8	1.8 U	1.8	1

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous EPA 537 Version 1.1 Modified			ng/l	ng/l	
14473	6:2 fluorotelomersulfonate	27619-97-2	1.8 U	1.8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	5.3 U	5.3	1
14473	Perfluorobutanoic acid	375-22-4	5.3 U	5.3	1
14473	Perfluorodecanesulfonate	335-77-3	1.8 U	1.8	1
14473	Perfluoroheptanesulfonate	375-92-8	1.8 U	1.8	1
14473	Perfluorooctanesulfonamide	754-91-6	2.7 U	2.7	1
14473	Perfluoropentanoic acid	2706-90-3	5.3 U	5.3	1

Sample Comments

State of New York Certification No. 10670

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14070	14 PFAS Drinking Water List	EPA 537 Version 1.1	1	18256014	09/14/2018 13:05	Joshua P Trost	1
14473	7 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18251005	09/11/2018 10:33	Devon M Whooley	1
14381	DW PFAS Prep	EPA 537 Version 1.1	2	18256014	09/13/2018 09:20	Danielle D McCully	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18251005	09/10/2018 08:00	Courtney J Fatta	1

Sample Description: FTB-180906 Grab Blank Water
Hoosick Falls Water Treatment Plant

C. T. Male Associates
ELLE Sample #: PW 9792032
ELLE Group #: 1984762
Matrix: Blank Water

Project Name: Hoosick Falls WTP

Submittal Date/Time: 09/07/2018 10:10
Collection Date/Time: 09/06/2018 09:55
SDG#: H0008-02FB

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous EPA 537 Version 1.1			ng/l	ng/l	
14070	NEtFOSAA NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.	2991-50-6	1.9 U	1.9	1
14070	NMeFOSAA NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.	2355-31-9	1.9 U	1.9	1
14070	Perfluorobutanesulfonate	375-73-5	1.9 U	1.9	1
14070	Perfluorodecanoic acid	335-76-2	1.9 U	1.9	1
14070	Perfluorododecanoic acid	307-55-1	1.9 U	1.9	1
14070	Perfluoroheptanoic acid	375-85-9	1.9 U	1.9	1
14070	Perfluorohexanesulfonate	355-46-4	1.9 U	1.9	1
14070	Perfluorohexanoic acid	307-24-4	1.9 U	1.9	1
14070	Perfluorononanoic acid	375-95-1	1.9 U	1.9	1
14070	Perfluoro-octanesulfonate	1763-23-1	1.9 U	1.9	1
14070	Perfluorooctanoic acid	335-67-1	1.9 U	1.9	1
14070	Perfluorotetradecanoic acid	376-06-7	1.9 U	1.9	1
14070	Perfluorotridecanoic acid	72629-94-8	1.9 U	1.9	1
14070	Perfluoroundecanoic acid	2058-94-8	1.9 U	1.9	1

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous EPA 537 Version 1.1 Modified			ng/l	ng/l	
14473	6:2 fluorotelomersulfonate	27619-97-2	1.8 U	1.8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	5.4 U	5.4	1
14473	Perfluorobutanoic acid	375-22-4	5.4 U	5.4	1
14473	Perfluorodecanesulfonate	335-77-3	1.8 U	1.8	1
14473	Perfluoroheptanesulfonate	375-92-8	1.8 U	1.8	1
14473	Perfluorooctanesulfonamide	754-91-6	2.7 U	2.7	1
14473	Perfluoropentanoic acid	2706-90-3	5.4 U	5.4	1

Sample Comments

State of New York Certification No. 10670

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14070	14 PFAS Drinking Water List	EPA 537 Version 1.1	1	18256014	09/14/2018 13:16	Joshua P Trost	1
14473	7 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18251005	09/11/2018 10:42	Devon M Whooley	1
14381	DW PFAS Prep	EPA 537 Version 1.1	2	18256014	09/13/2018 09:20	Danielle D McCully	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18251005	09/10/2018 08:00	Courtney J Fatta	1

Sample Description: GAC Influent Grab Drinking Water
Hoosick Falls Water Treatment Plant

C. T. Male Associates
ELLE Sample #: PW 9792033
ELLE Group #: 1984762
Matrix: Drinking Water

Project Name: Hoosick Falls WTP

Submission Date/Time: 09/07/2018 10:10
Collection Date/Time: 09/06/2018 09:45
SDG#: H008-03

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous EPA 537 Version 1.1			ng/l	ng/l	
14070	NEtFOSAA NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.	2991-50-6	2.0 U	2.0	1
14070	NMeFOSAA NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.	2355-31-9	2.0 U	2.0	1
14070	Perfluorobutanesulfonate	375-73-5	2.0 U	2.0	1
14070	Perfluorodecanoic acid	335-76-2	2.0 U	2.0	1
14070	Perfluorododecanoic acid	307-55-1	2.0 U	2.0	1
14070	Perfluoroheptanoic acid	375-85-9	12	2.0	1
14070	Perfluorohexanesulfonate	355-46-4	2.0 U	2.0	1
14070	Perfluorohexanoic acid	307-24-4	11	2.0	1
14070	Perfluorononanoic acid	375-95-1	2.0 U	2.0	1
14070	Perfluoro-octanesulfonate	1763-23-1	2.6	2.0	1
14070	Perfluorooctanoic acid	335-67-1	380	20	10
14070	Perfluorotetradecanoic acid	376-06-7	2.0 U	2.0	1
14070	Perfluorotridecanoic acid	72629-94-8	2.0 U	2.0	1
14070	Perfluoroundecanoic acid	2058-94-8	2.0 U	2.0	1

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous EPA 537 Version 1.1 Modified			ng/l	ng/l	
14473	6:2 fluorotelomersulfonate	27619-97-2	1.8 U	1.8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	5.4 U	5.4	1
14473	Perfluorobutanoic acid	375-22-4	5.4 U	5.4	1
14473	Perfluorodecanesulfonate	335-77-3	1.8 U	1.8	1
14473	Perfluoroheptanesulfonate	375-92-8	1.8 U	1.8	1
14473	Perfluorooctanesulfonamide	754-91-6	2.7 U	2.7	1
14473	Perfluoropentanoic acid	2706-90-3	5.4 U	5.4	1

Sample Comments

State of New York Certification No. 10670

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14070	14 PFAS Drinking Water List	EPA 537 Version 1.1	1	18256014	09/14/2018 13:28	Joshua P Trost	1
14070	14 PFAS Drinking Water List	EPA 537 Version 1.1	1	18256014	09/14/2018 15:23	Joshua P Trost	10
14473	7 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18251005	09/11/2018 10:51	Devon M Whooley	1
14381	DW PFAS Prep	EPA 537 Version 1.1	2	18256014	09/13/2018 09:20	Danielle D McCully	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18251005	09/10/2018 08:00	Courtney J Fatta	1

Sample Description: GAC Midfluent Grab Drinking Water
Hoosick Falls Water Treatment Plant

C. T. Male Associates
ELLE Sample #: PW 9792034
ELLE Group #: 1984762
Matrix: Drinking Water

Project Name: Hoosick Falls WTP

Submission Date/Time: 09/07/2018 10:10
Collection Date/Time: 09/06/2018 09:47
SDG#: H008-04

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous EPA 537 Version 1.1			ng/l	ng/l	
14070	NEtFOSAA NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.	2991-50-6	1.9 U	1.9	1
14070	NMeFOSAA NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.	2355-31-9	1.9 U	1.9	1
14070	Perfluorobutanesulfonate	375-73-5	1.9 U	1.9	1
14070	Perfluorodecanoic acid	335-76-2	1.9 U	1.9	1
14070	Perfluorododecanoic acid	307-55-1	1.9 U	1.9	1
14070	Perfluoroheptanoic acid	375-85-9	1.9 U	1.9	1
14070	Perfluorohexanesulfonate	355-46-4	1.9 U	1.9	1
14070	Perfluorohexanoic acid	307-24-4	1.9 U	1.9	1
14070	Perfluorononanoic acid	375-95-1	1.9 U	1.9	1
14070	Perfluoro-octanesulfonate	1763-23-1	1.9 U	1.9	1
14070	Perfluorooctanoic acid	335-67-1	1.9 U	1.9	1
14070	Perfluorotetradecanoic acid	376-06-7	1.9 U	1.9	1
14070	Perfluorotridecanoic acid	72629-94-8	1.9 U	1.9	1
14070	Perfluoroundecanoic acid	2058-94-8	1.9 U	1.9	1

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous EPA 537 Version 1.1 Modified			ng/l	ng/l	
14473	6:2 fluorotelomersulfonate	27619-97-2	1.8 U	1.8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	5.3 U	5.3	1
14473	Perfluorobutanoic acid	375-22-4	6.3	5.3	1
14473	Perfluorodecanesulfonate	335-77-3	1.8 U	1.8	1
14473	Perfluoroheptanesulfonate	375-92-8	1.8 U	1.8	1
14473	Perfluorooctanesulfonamide	754-91-6	2.7 U	2.7	1
14473	Perfluoropentanoic acid	2706-90-3	5.3 U	5.3	1

Sample Comments

State of New York Certification No. 10670

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14070	14 PFAS Drinking Water List	EPA 537 Version 1.1	1	18256014	09/14/2018 13:40	Joshua P Trost	1
14473	7 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18251005	09/11/2018 11:00	Devon M Whooley	1
14381	DW PFAS Prep	EPA 537 Version 1.1	2	18256014	09/13/2018 09:20	Danielle D McCully	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18251005	09/10/2018 08:00	Courtney J Fatta	1

Sample Description: GAC Effluent Grab Drinking Water
Hoosick Falls Water Treatment Plant

C. T. Male Associates
ELLE Sample #: PW 9792035
ELLE Group #: 1984762
Matrix: Drinking Water

Project Name: Hoosick Falls WTP

Submission Date/Time: 09/07/2018 10:10
Collection Date/Time: 09/06/2018 09:40
SDG#: H008-05

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous EPA 537 Version 1.1			ng/l	ng/l	
14070	NEtFOSAA NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.	2991-50-6	1.9 U	1.9	1
14070	NMeFOSAA NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.	2355-31-9	1.9 U	1.9	1
14070	Perfluorobutanesulfonate	375-73-5	1.9 U	1.9	1
14070	Perfluorodecanoic acid	335-76-2	1.9 U	1.9	1
14070	Perfluorododecanoic acid	307-55-1	1.9 U	1.9	1
14070	Perfluoroheptanoic acid	375-85-9	1.9 U	1.9	1
14070	Perfluorohexanesulfonate	355-46-4	1.9 U	1.9	1
14070	Perfluorohexanoic acid	307-24-4	1.9 U	1.9	1
14070	Perfluorononanoic acid	375-95-1	1.9 U	1.9	1
14070	Perfluoro-octanesulfonate	1763-23-1	1.9 U	1.9	1
14070	Perfluorooctanoic acid	335-67-1	1.9 U	1.9	1
14070	Perfluorotetradecanoic acid	376-06-7	1.9 U	1.9	1
14070	Perfluorotridecanoic acid	72629-94-8	1.9 U	1.9	1
14070	Perfluoroundecanoic acid	2058-94-8	1.9 U	1.9	1

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous EPA 537 Version 1.1 Modified			ng/l	ng/l	
14473	6:2 fluorotelomersulfonate	27619-97-2	1.8 U	1.8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	5.4 U	5.4	1
14473	Perfluorobutanoic acid	375-22-4	5.4 U	5.4	1
14473	Perfluorodecanesulfonate	335-77-3	1.8 U	1.8	1
14473	Perfluoroheptanesulfonate	375-92-8	1.8 U	1.8	1
14473	Perfluorooctanesulfonamide	754-91-6	2.7 U	2.7	1
14473	Perfluoropentanoic acid	2706-90-3	5.4 U	5.4	1

Sample Comments

State of New York Certification No. 10670

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14070	14 PFAS Drinking Water List	EPA 537 Version 1.1	1	18256014	09/14/2018 13:51	Joshua P Trost	1
14473	7 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18251005	09/11/2018 11:09	Devon M Whooley	1
14381	DW PFAS Prep	EPA 537 Version 1.1	2	18256014	09/13/2018 09:20	Danielle D McCully	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18251005	09/10/2018 08:00	Courtney J Fatta	1

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/17/2018 15:33

Group Number: 1984762

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	LOQ
	ng/l	ng/l
Batch number: 18251005	Sample number(s): 9792031-9792035	
6:2 fluorotelomersulfonate	2.0 U	2.0
8:2 fluorotelomersulfonate	6.0 U	6.0
Perfluorobutanoic acid	6.0 U	6.0
Perfluorodecanesulfonate	2.0 U	2.0
Perfluoroheptanesulfonate	2.0 U	2.0
Perfluorooctanesulfonamide	3.0 U	3.0
Perfluoropentanoic acid	6.0 U	6.0
Batch number: 18256014	Sample number(s): 9792031-9792035	
NETFOSAA	2.0 U	2.0
NMeFOSAA	2.0 U	2.0
Perfluorobutanesulfonate	2.0 U	2.0
Perfluorodecanoic acid	2.0 U	2.0
Perfluorododecanoic acid	2.0 U	2.0
Perfluoroheptanoic acid	2.0 U	2.0
Perfluorohexanesulfonate	2.0 U	2.0
Perfluorohexanoic acid	2.0 U	2.0
Perfluorononanoic acid	2.0 U	2.0
Perfluoro-octanesulfonate	2.0 U	2.0
Perfluorooctanoic acid	2.0 U	2.0
Perfluorotetradecanoic acid	2.0 U	2.0
Perfluorotridecanoic acid	2.0 U	2.0
Perfluoroundecanoic acid	2.0 U	2.0

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ng/l	ng/l	ng/l	ng/l					
Batch number: 18251005	Sample number(s): 9792031-9792035								
6:2 fluorotelomersulfonate	15.17	15.73	15.17	17.08	104	113	66-155	8	30
8:2 fluorotelomersulfonate	15.33	13.78	15.33	16.69	90	109	66-148	19	30
Perfluorobutanoic acid	5.44	5.38	5.44	5.34	99	98	74-142	1	30
Perfluorodecanesulfonate	5.24	5.20	5.24	4.40	99	84	60-135	17	30
Perfluoroheptanesulfonate	5.18	4.94	5.18	4.81	95	93	64-135	3	30
Perfluorooctanesulfonamide	5.44	5.40	5.44	5.36	99	99	65-164	1	30

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/17/2018 15:33

Group Number: 1984762

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ng/l	LCS Conc ng/l	LCSD Spike Added ng/l	LCSD Conc ng/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Perfluoropentanoic acid	5.44	5.21	5.44	5.28	96	97	74-134	1	30
Batch number: 18256014	Sample number(s): 9792031-9792035								
NEtFOSAA	20	16.51	20	17.42	83	87	70-130	5	30
NMeFOSAA	20	17.26	20	17.52	86	88	70-130	1	30
Perfluorobutanesulfonate	18.12	16.15	18.12	16.68	89	92	70-130	3	30
Perfluorodecanoic acid	20.48	21.29	20.48	19.79	104	97	70-130	7	30
Perfluorododecanoic acid	20.48	18.15	20.48	18.6	89	91	70-130	2	30
Perfluoroheptanoic acid	20.48	19.76	20.48	20.04	96	98	70-130	1	30
Perfluorohexanesulfonate	19.36	17.46	19.36	17.29	90	89	70-130	1	30
Perfluorohexanoic acid	20.48	18.89	20.48	19.01	92	93	70-130	1	30
Perfluorononanoic acid	20.48	19.78	20.48	19.81	97	97	70-130	0	30
Perfluoro-octanesulfonate	19.58	17.35	19.58	17.02	89	87	70-130	2	30
Perfluorooctanoic acid	20.48	17.5	20.48	17.32	85	85	70-130	1	30
Perfluorotetradecanoic acid	20.48	15.42	20.48	17.19	75	84	70-130	11	30
Perfluorotridecanoic acid	20.48	16.17	20.48	17.51	79	85	70-130	8	30
Perfluoroundecanoic acid	20.48	20.76	20.48	19.81	101	97	70-130	5	30

Labeled Isotope Quality Control

Labeled isotope recoveries which are outside of the QC window are confirmed unless otherwise noted on the analysis report.

Analysis Name: 7 PFAS Compounds
Batch number: 18251005

	13C4-PFBA	13C5-PFPeA	13C3-PFHxS	13C2-6:2-FTS	13C8-PFOS	13C2-8:2-FTS
9792031	97	97	95	127	97	113
9792032	89	87	87	109	90	100
9792033	90	97	104	102	88	104
9792034	97	92	94	133	99	105
9792035	92	90	86	110	87	93
Blank	93	96	90	119	96	107
LCS	106	106	103	134	111	137
LCSD	92	91	94	106	96	98
Limits:	33-123	31-157	34-126	32-170	50-121	27-164

13C8-PFOSA

9792031	93
9792032	78
9792033	78
9792034	89

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: C. T. Male Associates
Reported: 09/17/2018 15:33

Group Number: 1984762

Labeled Isotope Quality Control (continued)

Labeled isotope recoveries which are outside of the QC window are confirmed unless otherwise noted on the analysis report.

Analysis Name: 7 PFAS Compounds
Batch number: 18251005

	13C8-PFOSA
9792035	83
Blank	83
LCS	90
LCSD	84

Limits: 11-127

Analysis Name: 14 PFAS Drinking Water List
Batch number: 18256014

	13C2-PFHxA	13C2-PFDA	D5-NetFOSAA
9792031	86	97	84
9792032	74	84	78
9792033	88	100	83
9792034	86	97	85
9792035	84	96	92
Blank	91	105	95
LCS	85	101	91
LCSD	83	93	86

Limits: 70-130 70-130 70-130

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.



Client: C.T. Male Associates

Delivery and Receipt Information

Delivery Method: Fed Ex Arrival Timestamp: 09/07/2018 10:10
 Number of Packages: 1 Number of Projects: 1
 State/Province of Origin: NY

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace \geq 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	See Below
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Trip Blank Type(s): 2-250 mL plastic bottles (Trizma), 2-250 mL plastic bottles (unpre)

Unpacked by Melvin Sanchez (8943) at 14:39 on 09/07/2018

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

<u>Cooler #</u>	<u>Thermometer ID</u>	<u>Corrected Temp</u>	<u>Therm. Type</u>	<u>Ice Type</u>	<u>Ice Present?</u>	<u>Ice Container</u>	<u>Elevated Temp?</u>
1	DT146	3.7	DT	Wet	Y	Bagged	N

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	mL	milliliter(s)
C	degrees Celsius	MPN	Most Probable Number
cfu	colony forming units	N.D.	non-detect
CP Units	cobalt-chloroplatinate units	ng	nanogram(s)
F	degrees Fahrenheit	NTU	nephelometric turbidity units
g	gram(s)	pg/L	picogram/liter
IU	International Units	RL	Reporting Limit
kg	kilogram(s)	TNTC	Too Numerous To Count
L	liter(s)	µg	microgram(s)
lb.	pound(s)	µL	microliter(s)
m3	cubic meter(s)	umhos/cm	micromhos/cm
meq	milliequivalents	MCL	Maximum Contamination Limit
mg	milligram(s)		
<	less than		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

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

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

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Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the QC limit and the sample result is ND
K2	Continuing Calibration Blank is above the QC limit and the sample result is ND
K3	Initial Calibration Verification is above the QC limit and the sample result is ND
K4	Continuing Calibration Verification is above the QC limit and the sample result is ND
J (or G, I, X)	Estimated value \geq the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
P^	Concentration difference between the primary and confirmation column $> 40\%$. The higher result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.