

**DES Waste Management Division
29 Hazen Drive; PO Box 95
Concord, NH 03302-0095**

**May 2018 Unvalidated Dry-Weather and Surface
Water Data Submittal
Saint-Gobain Performance Plastics
701 Daniel Webster Highway
Merrimack, New Hampshire 03054
NHDES Site No.: 199712055
Project Number: 36430**

Prepared For:
Saint-Gobain Performance Plastics Corp.
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RP Contact Name: Chris Angier
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Prepared By:
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Contact Name: Ross Bennett
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Date of Report: June 29, 2018

June 29, 2018

166-8623

Ms. Lea Anne Atwell
New Hampshire Department of Environmental Services
Waste Management Division
P.O. Box 95, 29 Hazen Drive
Concord, New Hampshire 03302-0095

**RE: MAY 2018 UNVALIDATED DRY-WEATHER AND SURFACE WATER DATA SUBMITTAL
SAINT-GOBAIN PERFORMANCE PLASTICS
701 DANIEL WEBSTER HIGHWAY, MERRIMACK, NEW HAMPSHIRE
NHDES SITE NO. 199712055**

Dear Ms. Atwell:

Golder Associates Inc. (Golder) is providing this Data Submittal to the New Hampshire Department of Environmental Services (NHDES) on behalf of Saint-Gobain Performance Plastics (SGPP) for the SGPP facility located at 701 Daniel Webster Highway, Merrimack, New Hampshire (Site). This letter summarizes the May 2018 dry-weather flow and surface water sampling results.

Golder performed the sampling event in accordance with the Work Plan for 2018 Stormwater and Surface Water Investigation prepared by Golder Associates (2018 StW-SW WP; Golder, 2018a). The 2018 Work Plan was prepared in response to the March 14, 2018 NHDES letter (NHDES, 2018a) that provided written comments on the Stormwater and Surface Water Investigation Summary Report (StW-SW ISR; Golder, 2018b). An April 13, 2018 letter from NHDES approved the 2018 StW-SW WP, provided additional comments from NHDES were included into the scope of the work (NHDES, 2018b). Together the 2018 StW-SW WP and the April 13, 2018 NHDES letter represent Golder's understanding of the stormwater and surface water sampling requirements for the SGPP facility for 2018.

On May 17, 18, and 24, 2018, Golder personnel collected surface water samples from the Site stormwater conveyance system (3 samples), the Merrimack River (13 samples), Dumlupınar Brook (9 samples), and an Unnamed Brook A (2 samples). The samples were originally collected over a two-day period between May 17 and May 18, 2018. However, several samples collected during the May 17 and May 18 event were temporarily lost by the shipping company and delivery to the laboratory was delayed. When the samples were eventually delivered to the laboratory, they were received at temperatures above the method standard and so were not analyzed. On May 24, 2018, Golder re-collected all samples that did not meet the temperature standard.

Golder submitted the stormwater conveyance system and surface water samples under chain-of-custody procedures to Eurofins Lancaster Laboratories Environmental, Inc. of Lancaster, Pennsylvania (ELLE) for analysis of the parameters listed on Tables 1 and 2. Laboratory analytical reports are included as Attachment A. Analytical results for the May 2018 sampling event are summarized in Table 1 and Table 2. Field parameters are summarized in Attachment B. Analytical data provided as part of this data submittal have not yet been validated. Validated data will be submitted to NHDES within 45 days of receipt of analytical data in all formats necessary for the validation process from ELLE, which have not been provided to Golder as of June 26, 2018.

The next dry-weather sampling event is tentatively scheduled for July 2018, weather permitting. Should you have any questions regarding this Data Submittal, please call Mr. Ross Bennett at (603) 668-0880.

Sincerely,

Golder Associates Inc.



Alistair Macdonald, P.G., LSP
Senior Program Leader and Principal



Ross Bennett, P.E.
Senior Engineer

JTF/RB

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Encl:

Table 1 – Preliminary May 2018 Dry-Weather Sampling Event Analytical Data
Table 2 – Preliminary May 2018 Dry-Weather Sampling Event Analytical Data – Unnamed Brook A
Attachment A – Laboratory Analytical Reports
Attachment B – Field Parameters for Dry-Weather Sampling Event – May 2018

References:

Golder, 2018a. Work Plan for 2018 Stormwater and Surface Water Investigation: Saint-Gobain Performance Plastics, Merrimack, New Hampshire. January 30, 2018.

Golder, 2018b. Stormwater and Surface Water Investigation Summary Report: Saint-Gobain Performance Plastics, Merrimack, New Hampshire. January 30, 2018.

NHDES, 2018a. Letter Re: Stormwater and Surface Water Investigation Summary Report. March 14, 2018.

NHDES, 2018b. Letter Re: Work Plan for 2018 Stormwater and Surface Water Investigation. April 13, 2018.

TABLES

TABLE 1: Preliminary May 2018 Dry-Weather Sampling Event Anlytical Data
Saint-Gobain Performance Plastics
Merrimack, New Hampshire

	Sample ID	SGPP-MH-23	SGPP-MH-5	SGPP-Outfall 001	SW-MERR-101W-NS	SW-MERR-201W-NS	SW-MERR-201W-IC	SW-MERR-202W-NS	SW-MERR-202W-IC	SW-MERR-301W-NS	SW-MERR-302W-NS	SW-MERR-302W-IC	SW-MERR-303W-NS	SW-MERR-401W-NS	SW-MERR-402W-NS	SW-MERR-402W-IC	SW-MERR-403W-NS		SW-DB-101	SW-DB-101	SW-DB-102	SW-DB-103	SW-DB-104	SW-DB-105	SW-DB-106	SW-DB-107	SW-DB-108	SW-DB-109	
	Date	5/24/2018	2/14/2018	5/24/2018	5/24/2018	5/24/2018	5/24/2018	5/24/2018	5/24/2018	5/24/2018	5/24/2018	5/24/2018	5/24/2018	5/24/2018	5/17/2018	5/17/2018	5/18/2018		5/17/2018	5/24/2018	5/24/2018	5/17/2018	5/17/2018	5/17/2018	5/17/2018	5/18/2018	5/18/2018	5/18/2018	
PFAS Target Analyte List																													
NtFOSAA	ng/l	10	3.6	9.4 J	0.92 U	0.91 U	0.92 U	0.90 U	0.91 U	0.91 U	0.90 U	0.91 U	0.91 U	0.91 U	0.91 U	0.88 U	0.90 U		9.0 U	0.91 U	0.91 U	8.8 U	8.8 U	8.9 U	8.7 U	0.89 U	0.92 U	0.91 U	
NMeFOSAA	ng/l	0.92 U	0.89 U	9.1 U	0.92 U	0.91 U	0.92 U	0.90 U	0.91 U	0.91 U	0.90 U	0.91 U	0.91 U	0.91 U	0.91 U	0.88 U	0.90 U		9.0 U	0.91 U	0.91 U	8.8 U	8.8 U	8.9 U	8.7 U	0.89 U	0.92 U	0.91 U	
Perfluoro-Octanesulfonic Acid	ng/l	160	73	110	1.3 J	7.2	2.4	1.0 J	2.3	0.93 J	1.2 J	1.2 J	1.2 J	1.3 J	1.9	1.4 J	1.3 J		25	31	5.9	23	22	23	21	13	6.9	6	
Perfluorobutanesulfonic Acid	ng/l	1.5	6.0	7.8 J	0.88 J	0.97	0.97	0.70 J	0.68 J	0.72 J	0.73 J	0.76 J	0.70 J	0.74 J	0.94	0.94	0.86 J		6.7 J	7.8	2.0	7.0 J	6.9 J	6.7 J	6.9 J	6.4	5.5	5.6	
Perfluorobutanoic acid	ng/l	150	140	160	1.8 U	9.1	3.6 J	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U		29 J	30	5.3 J	23 J	20 J	21 J	20 J	16	9.2	8	
Perfluorodecanoic acid	ng/l	20	4.8	10 J	0.92 U	1.8 J	0.92 U	0.90 U	0.91 U	0.91 U	0.90 U	0.91 U	0.91 U	0.91 U	0.91 U	0.88 U	0.90 U		9.0 U	2.1	0.91 U	8.8 U	8.8 U	8.9 U	8.7 U	0.92 J	0.92 U	0.91 U	
Perfluorododecanoic acid	ng/l	5.9	3.4	6.1 J	0.27 U	0.27 U	0.28 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.26 U	0.27 U		2.7 U	0.27 U	0.27 U	2.6 U	2.6 U	2.7 U	2.6 U	0.27 U	0.28 U	0.27 U	
Perfluoroheptanoic acid	ng/l	250	360	400	1.5	17	6.2	0.68 J	0.72 J	0.70 J	1.0	0.93	0.87 J	0.98	1.8	1.8	1.5		85	90	17	68	62	61	58	51	38	33	
Perfluorohexanesulfonic Acid	ng/l	5.0	16	20	0.68 J	1.2 J	0.90 J	0.54 J	0.53 J	0.55 J	0.55 J	0.67 J	0.57 J	0.64 J	0.73 J	0.67 J	0.64 J		9.9 J	11	2.4	8.5 J	7.6 J	6.7 J	6.6 J	6.5	6.1	5.6	
Perfluorohexanoic acid	ng/l	420	740	760	2.5	28	12	1.2 J	1.2 J	1.3 J	1.8 J	1.9	1.7 J	1.7 J	3.3	2.8	2.5		140	160	29	110	98	100	95	82	45	37	
Perfluorononanoic acid	ng/l	59	14	17 J	0.62 J	0.69 J	0.49 J	0.36 U	0.36 U	0.36 U	0.36 U	0.37 U	0.37 U	0.37 U	0.37 U	0.35 U	0.36 U		5.1 J	5.3	0.74 J	4.9 J	4.7 J	4.7 J	4.4 J	2.3	1.5 J	0.91 J	
Perfluorooctanoic acid	ng/l	1,600	2,000	2,100	7.2	54	29	2.5	2.5	2.6	4.7	4.4	4.3	5.0	8.2	7.5	6		530	630	100	460	420	380	360	330	240	210	
Perfluoropentanoic acid	ng/l	320	540	530	2.0 J	24	9.9	1.8 U	1.8 U	1.8 U	1.9 J	2.0 J	2.0 J	2.1 J	2.5 J	2.2 J	2.1 J		100	110	22	86	75	77	70	46	23	18	
Perfluorotetradecanoic acid	ng/l	1.8	3.7	2.7 U	0.27 U	0.56 J	0.28 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.30 J	0.26 U	0.27 U		2.7 U	0.27 U	6.5	2.6 U	2.6 U	2.7 U	2.6 U	0.27 U	0.28 U	0.27 U	
Perfluorotridecanoic acid	ng/l	2.6	3.0	2.8 J	0.27 U	0.27 U	0.28 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	0.26 U	0.27 U		2.7 U	0.27 U	0.27 U	2.6 U	2.6 U	2.7 U	2.6 U	0.27 U	0.28 U	0.27 U	
Perfluoroundecanoic acid	ng/l	7.6	1.9	4.8 J	0.37 U	1.5 J	0.37 U	0.36 U	0.36 U	0.36 U	0.36 U	0.37 U	0.37 U	0.37 U	0.37 U	0.35 U	0.36 U		3.6 U	0.36 U	0.36 U	3.5 U	3.5 U	3.5 U	3.5 U	0.35 U	0.37 U	0.36 U	
PFAS Expanded Target Analyte List																													
10:2-fluorotelomersulfonate	ng/l	NA	NA	27 U	2.7 U	2.7 U	2.8 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
4:2 fluorotelomersulfonate	ng/l	NA	NA	9.1 U	0.92 U	0.91 U	0.92 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
6:2 fluorotelomersulfonate	ng/l	NA	NA	86		8.7	6.0	1.7 J	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
8:2 fluorotelomersulfonate	ng/l	NA	NA	18 U	1.8 U	1.8 U	1.8 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
NtPFOSA	ng/l	NA	NA	27 U	2.7 U	2.7 U	2.8 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
NtPFOSAE	ng/l	NA	NA	9.1 U	0.92 U	0.91 U	0.92 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
NMePFOSA	ng/l	NA	NA	27 U	2.7 U	2.7 U	2.8 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
NMePFOSAE	ng/l	NA	NA	9.1 U	0.92 U	0.91 U	0.92 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Perfluorododecanesulfonate	ng/l	NA	NA	5.5 U	0.55 U	0.55 U	0.55 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Perfluorododecanesulfonate	ng/l	NA	NA	2.7 U	0.27 U	0.27 U	0.28 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Perfluoroheptanesulfonate	ng/l	NA	NA	3.6 U	0.37 U	0.36 U	0.37 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Perfluorohexadecanoic acid	ng/l	NA	NA	2.7 U	0.27 U	0.27 U	0.28 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Perfluorononanesulfonate	ng/l	NA	NA	5.5 U	0.55 U	0.55 U	0.55 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Perfluorooctadecanoic acid	ng/l	NA	NA	2.7 U	0.27 U	0.27 U	0.28 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Perfluorooctanesulfonamide	ng/l	NA	NA	9.1 U	0.92 U	1.6 J	0.92 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Perfluoropentanesulfonate	ng/l	NA	NA	7.0 J	0.37 U	0.51 J	0.37 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
HFPODA	ng/l	NA	NA	1.5	0.28 U	0.30 U	0.29 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
NaDONA	ng/l	NA	NA	0.28 U	0.28 U	0.30 U	0.29 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Principal Ions/Wet Chemistry																													
Calcium	mg/l	NA	29.7	31.7	4.14	4.49	4.15	4.11	4.24	4.27	4.21	4.18	4.32	4.12	4.41	4.3	4.18		13.7	12.8	5.16	13.6	13.7	13.7	13.7	12.4	11.7	10.5	
Iron	mg/l	NA	0.466	0.0805 UK2	0.320 J	0.357 J	0.313 J	0.287 J	0.290 J	0.300 J	0.308 J	0.293 J	0.301 J	0.347 J	0.427	0.381 J	0.312 J		0.568	0.566	1.75	0.186 J	0.207 J	0.203 J	0.201 J	0.259 J	0.701	1.72	
Magnesium	mg/l	NA	6.79	7.03	0.822	0.933	0.830	0.830	0.849	0.850	0.838	0.829	0.863	0.826	0.865	0.849	0.802		2.16	2.26	0.976	2.2	2.18	2.17	2.22	2.26	2.12	2.15	
Manganese	mg/l	NA	0.0181	0.0222	0.0381	0.0346	0.0329	0.0304	0.0311	0.0310	0.0340	0.0311	0.0308	0.0365	0.0509	0.0433	0.0401		0.169	0.129	0.184	0.0768	0.0857	0.101	0.105	0.117	0.144	0.0723	
Potassium	mg/l	NA	4.13	4.19	1.01	0.960 J	1.02	0.972 J	1.08	1.02	1.07	0.986 J	1.06	1.00	0.943 J	0.9													

TABLE 2: Preliminary May 2018 Dry-Weather Sampling Event Anlaytical Data - Unnamed Brook A
Saint-Gobain Performance Plastics
Merrimack, New Hampshire

Analysis Name		SW-UBA-101		SW-UBA-102
	Sample Type	N	FD	N
PFAS Target Analyte List	Units			
NEtFOSAA	ng/l	8.8 U	9.1 U	12 U
NMeFOSAA	ng/l	8.8 U	9.1 U	12 U
Perfluoro-Octanesulfonic Acid	ng/l	16 J	16 J	30
Perfluorobutanesulfonic Acid	ng/l	5.3 J	5.1 J	9.4 J
Perfluorobutanoic acid	ng/l	32 J	35 J	53 J
Perfluorodecanoic acid	ng/l	8.8 U	9.1 U	12 U
Perfluorododecanoic acid	ng/l	2.6 U	2.7 U	3.7 U
Perfluoroheptanoic acid	ng/l	160	150	140
Perfluorohexanesulfonic Acid	ng/l	8.6 J	8.8 J	6.8 J
Perfluorohexanoic acid	ng/l	190	170	200
Perfluorononanoic acid	ng/l	5.6 J	6.6 J	10 J
Perfluorooctanoic acid	ng/l	1,500	1,600	1,200
Perfluoropentanoic acid	ng/l	100	100	130
Perfluorotetradecanoic acid	ng/l	2.6 U	2.7 U	3.7 U
Perfluorotridecanoic acid	ng/l	2.6 U	2.7 U	3.7 U
Perfluoroundecanoic acid	ng/l	3.5 U	3.7 U	5.0 U
Principal Ions/Wet Chemistry				
Calcium	mg/l	17.9	17.8	19.5
Iron	mg/l	0.0805 U	0.0805 U	0.836
Magnesium	mg/l	3.38	3.31	4.45
Manganese	mg/l	0.0162	0.0160	0.100
Potassium	mg/l	3.13	2.92	3.66
Sodium	mg/l	94.7	92.7	84.4
Chloride	mg/l	149	162	150
Nitrate Nitrogen	mg/l	0.36 J	0.38 J	0.41 J
Nitrite Nitrogen	mg/l	0.25 U	0.25 U	0.25 U
Sulfate	mg/l	8.9	9.8	7.5
Ammonia Nitrogen	mg/l	0.050 U	0.050 U	0.050 U
Total Alkalinity to pH 4.5	mg/l as CaCO3	20.3	17.6	25.0
Bicarbonate Alkalinity	mg/l as CaCO3	20.3	17.6	25.0
Total Suspended Solids	mg/l	1.04 J	1.00 U	7.46
Sulfite	mg/l	1.5 U	1.5 U	1.5 U
Expanded Metals List				
Aluminum	mg/l	0.0894 U	0.0894 U	0.292 J
Antimony	mg/l	0.00045 U	0.00045 U	0.00045 U
Arsenic	mg/l	0.00072 U	0.00072 U	0.00081 J
Barium	mg/l	0.0330	0.0339	0.0851
Beryllium	mg/l	0.000071 U	0.000071 U	0.000071 U
Cadmium	mg/l	0.00015 U	0.00015 U	0.00015 U
Chromium	mg/l	0.00087 U	0.00087 U	0.00089 J
Cobalt	mg/l	0.00016 U	0.00016 U	0.00059 J
Copper	mg/l	0.00069 J	0.00093 J	0.0013 J
Lead	mg/l	0.00011 U	0.00011 U	0.0020
Nickel	mg/l	0.0010 U	0.0010 U	0.0013 J
Selenium	mg/l	0.00050 U	0.00050 U	0.00050 U
Silver	mg/l	0.00015 U	0.00015 U	0.00015 U
Thallium	mg/l	0.00012 U	0.00012 U	0.00012 U
Vanadium	mg/l	0.00022 J	0.00021 U	0.0010
Mercury	mg/l	0.000050 U	0.000050 U	0.000050 U
Zinc	mg/l	0.0065 U	0.0065 U	0.0152 J

Notes:

1. Samples were collected by Golder on the dates indicated and submitted to Eurofins Lancaster Laboratory Environmental, Inc. (ELLE) of Lancaster, PA for analysis of the indicated compounds. Data presented in the table are unvalidated.

2. U - analytical results were not detected above the reporting detection limit J - analytical results were detected below the reporting detection limit

3. N - indicates normal sample FD - idicates the sample is a field duplicate

Prepared by: STD
Checked by: LDA
Reviewed by: RWB

ATTACHMENT A



ANALYSIS REPORT

Prepared by:

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

Prepared for:

Golder Associates
670 North Commercial Street
Suite 103
Manchester NH 03101

Report Date: June 12, 2018 11:09

Project: SGPP-Merrimack NH

Account #: 10253
Group Number: 1945663
SDG: GOA17
PO Number: PROJECT: 166-8623
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at <http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>. To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To Golder Associates
Electronic Copy To Golder Associates
Electronic Copy To Environmental Standards
Electronic Copy To Environmental Standards
Electronic Copy To Golder Associates

Attn: Scott Drew
Attn: Ross Bennett
Attn: SaintGobain
Attn: Meg Michell
Attn: Jim Peace

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250



SAMPLE INFORMATION

<u>Client Sample Description</u>	<u>Sample Collection</u> <u>Date/Time</u>	<u>ELLE#</u>
EB-2 Grab Water	05/17/2018 10:00	9619228
SW-MERR-402W-NS Grab Surface Water	05/17/2018 13:15	9619229
SW-MERR-402W-IC Grab Surface Water	05/17/2018 13:25	9619230
SW-MERR-403W-NS Grab Surface Water	05/17/2018 13:00	9619231
SW-DB-101 Grab Surface Water	05/17/2018 10:15	9619232
SW-DB-103 Grab Surface Water	05/17/2018 14:25	9619233
SW-DB-104 Grab Surface Water	05/17/2018 16:00	9619234
SW-DB-105 Grab Surface Water	05/17/2018 14:50	9619235
SW-DB-106 Grab Surface Water	05/17/2018 15:15	9619236

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

Project Name: SGPP-Merrimack NH
ELLE Group #: 1945663

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:**EPA 537 Version 1.1 Modified, LC/MS/MS Miscellaneous**

Sample #s: 9619232, 9619233, 9619234, 9619235, 9619236

Reporting limits were raised due to interference from the sample matrix.

Sample #s: 9619229

The recovery for labeled compound used as extraction standard
13C3-PFBS is outside of QC acceptance limits as noted on the
QC Summary due to the matrix of the sample.

Batch #: 18144009 (Sample number(s): 9619228-9619236 UNSPK: P618578)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Perfluorodecanoic acid, Perfluorooctanoic acid, Perfluorononanoic acid, Perfluorotetradecanoic acid, Perfluoroheptanoic acid, Perfluoro-Octanesulfonic Acid, Perfluorobutanoic acid, Perfluoropentanoic acid

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Perfluorooctanoic acid

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Perfluorotetradecanoic acid

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9619229, 9619232

EPA 300.0, Wet Chemistry

Batch #: 18138987112A (Sample number(s): 9619228-9619236 UNSPK: 9619231 BKG: 9619231)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Chloride, Sulfate, Nitrate Nitrogen, Nitrite Nitrogen

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Nitrate Nitrogen

Sample Description: EB-2 Grab Water
Project Name: SGPP-Merrimack NH

Golder Associates
ELLE Sample #: WW 9619228
ELLE Group #: 1945663
Matrix: Water

Submittal Date/Time: 05/18/2018 09:50
Collection Date/Time: 05/17/2018 10:00
SDG#: GOA17-04

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous EPA 537 Version 1.1 Modified						
14473	NEtFOSAA	2991-50-6	0.89 U	0.89	2.7	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.89 U	0.89	2.7	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonic Acid	375-73-5	0.27 U	0.27	0.89	1
14473	Perfluorobutanoic acid	375-22-4	1.8 U	1.8	5.4	1
14473	Perfluorodecanoic acid	335-76-2	0.89 U	0.89	1.8	1
14473	Perfluorododecanoic acid	307-55-1	0.27 U	0.27	0.89	1
14473	Perfluoroheptanoic acid	375-85-9	0.27 U	0.27	0.89	1
14473	Perfluorohexanesulfonic Acid	355-46-4	0.36 U	0.36	1.8	1
14473	Perfluorohexanoic acid	307-24-4	0.36 U	0.36	1.8	1
14473	Perfluorononanoic acid	375-95-1	0.36 U	0.36	1.8	1
14473	Perfluoro-Octanesulfonic Acid	1763-23-1	0.36 U	0.36	1.8	1
14473	Perfluorooctanoic acid	335-67-1	0.27 U	0.27	0.89	1
14473	Perfluoropentanoic acid	2706-90-3	1.8 U	1.8	5.4	1
14473	Perfluorotetradecanoic acid	376-06-7	0.27 U	0.27	0.89	1
14473	Perfluorotridecanoic acid	72629-94-8	0.27 U	0.27	0.89	1
14473	Perfluoroundecanoic acid	2058-94-8	0.36 U	0.36	1.8	1
Metals SW-846 6010C						
01750	Calcium	7440-70-2	0.0600 U	0.0600	0.400	1
01754	Iron	7439-89-6	0.0805 U	0.0805	0.400	1
01757	Magnesium	7439-95-4	0.0374 UK2	0.0374	0.200	1
07058	Manganese	7439-96-5	0.0016 U	0.0016	0.0100	1
01762	Potassium	7440-09-7	0.179 U	0.179	1.00	1
01767	Sodium	7440-23-5	0.321 U	0.321	2.00	1
Wet Chemistry EPA 300.0						
00224	Chloride	16887-00-6	0.20 U	0.20	0.40	1
00368	Nitrate Nitrogen	14797-55-8	0.050 U	0.050	0.10	1
01506	Nitrite Nitrogen	14797-65-0	0.050 U	0.050	0.10	1
00228	Sulfate	14808-79-8	0.30 U	0.30	1.0	1
EPA 350.1						
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
SM 2320 B-2011						
12150	Total Alkalinity to pH 4.5	n.a.	1.7 U	1.7	5.0	1
12149	Bicarbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
SM 2540 D-2011						

*=This limit was used in the evaluation of the final result

Sample Description: EB-2 Grab Water
Project Name: SGPP-Merrimack NH

Golder Associates
ELLE Sample #: WW 9619228
ELLE Group #: 1945663
Matrix: Water

Submittal Date/Time: 05/18/2018 09:50
Collection Date/Time: 05/17/2018 10:00
SDG#: GOA17-04

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Wet Chemistry						
13858	Total Suspended Solids	SM 2540 D-2011 n.a.	mg/l 1.00 U	mg/l 1.00	mg/l 3.00	1
Wet Chemistry						
00229	Sulfite	SM 4500-SO3 B-2011 14265-45-3	mg/l 1.5 U	mg/l 1.5	mg/l 5.0	1
The 40 CFR Part 136 requires that this analysis be performed immediately (within 15 minutes) upon sample collection. Because this was not possible, the result may not be used for reporting purposes.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	16 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18144009	06/07/2018 15:05	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18144009	05/24/2018 09:10	Courtney J Fatta	1
01750	Calcium	SW-846 6010C	1	181431063602	05/25/2018 12:06	Suzanne M Will	1
01754	Iron	SW-846 6010C	1	181431063602	05/25/2018 12:06	Suzanne M Will	1
01757	Magnesium	SW-846 6010C	1	181431063602	05/25/2018 12:06	Suzanne M Will	1
07058	Manganese	SW-846 6010C	1	181431063602	05/25/2018 12:06	Suzanne M Will	1
01762	Potassium	SW-846 6010C	1	181431063602	05/25/2018 12:06	Suzanne M Will	1
01767	Sodium	SW-846 6010C	1	181431063602	05/25/2018 12:06	Suzanne M Will	1
10636	ICP-WWW/TL, 3010A (tot) - U4	SW-846 3010A	1	181431063602	05/24/2018 06:40	Nicholas W Shroyer	1
00224	Chloride	EPA 300.0	1	18138987112A	05/19/2018 00:10	Clinton M Wilson	1
00368	Nitrate Nitrogen	EPA 300.0	1	18138987112A	05/19/2018 00:10	Clinton M Wilson	1
01506	Nitrite Nitrogen	EPA 300.0	1	18138987112A	05/19/2018 00:10	Clinton M Wilson	1
00228	Sulfate	EPA 300.0	1	18138987112A	05/19/2018 00:10	Clinton M Wilson	1
12892	Ammonia Nitrogen	EPA 350.1	1	18143107101A	05/23/2018 18:14	Samuel J Weaver	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-2011	1	18142002202A	05/23/2018 01:37	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-2011	1	18142002202A	05/23/2018 01:37	Jeremy L Bolf	1
13858	Total Suspended Solids	SM 2540 D-2011	1	18143385801A	05/23/2018 14:14	Leroy C Poole	1
00229	Sulfite	SM 4500-SO3 B-2011	1	18142022901A	05/22/2018 10:00	Michelle L Lalli	1

*=This limit was used in the evaluation of the final result

Sample Description: SW-MERR-402W-NS Grab Surface Water

Project Name: SGPP-Merrimack NH

Golder Associates

ELLE Sample #: WW 9619229

ELLE Group #: 1945663

Matrix: Surface Water

Submission Date/Time: 05/18/2018 09:50

Collection Date/Time: 05/17/2018 13:15

SDG#: GOA17-05

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous		EPA 537 Version 1.1 Modified	ng/l	ng/l	ng/l	
14473	NEtFOSAA	2991-50-6	0.91 U	0.91	2.7	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.91 U	0.91	2.7	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonic Acid	375-73-5	0.94	0.27	0.91	1
14473	Perfluorobutanoic acid	375-22-4	1.8 U	1.8	5.5	1
14473	Perfluorodecanoic acid	335-76-2	0.91 U	0.91	1.8	1
14473	Perfluorododecanoic acid	307-55-1	0.27 U	0.27	0.91	1
14473	Perfluoroheptanoic acid	375-85-9	1.8	0.27	0.91	1
14473	Perfluorohexanesulfonic Acid	355-46-4	0.73 J	0.37	1.8	1
14473	Perfluorohexanoic acid	307-24-4	3.3	0.37	1.8	1
14473	Perfluorononanoic acid	375-95-1	0.37 U	0.37	1.8	1
14473	Perfluoro-Octanesulfonic Acid	1763-23-1	1.9	0.37	1.8	1
14473	Perfluorooctanoic acid	335-67-1	8.2	0.27	0.91	1
14473	Perfluoropentanoic acid	2706-90-3	2.5 J	1.8	5.5	1
14473	Perfluorotetradecanoic acid	376-06-7	0.30 J	0.27	0.91	1
14473	Perfluorotridecanoic acid	72629-94-8	0.27 U	0.27	0.91	1
14473	Perfluoroundecanoic acid	2058-94-8	0.37 U	0.37	1.8	1

The recovery for labeled compound used as extraction standard 13C3-PFBS is outside of QC acceptance limits as noted on the QC Summary due to the matrix of the sample.

Metals		SW-846 6010C	mg/l	mg/l	mg/l	
01750	Calcium	7440-70-2	4.41	0.0600	0.400	1
01754	Iron	7439-89-6	0.427	0.0805	0.400	1
01757	Magnesium	7439-95-4	0.865	0.0374	0.200	1
07058	Manganese	7439-96-5	0.0509	0.0016	0.0100	1
01762	Potassium	7440-09-7	0.943 J	0.179	1.00	1
01767	Sodium	7440-23-5	16.2	0.321	2.00	1

Wet Chemistry		EPA 300.0	mg/l	mg/l	mg/l	
00224	Chloride	16887-00-6	25.3	1.0	2.0	5
00368	Nitrate Nitrogen	14797-55-8	0.31 J	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	Sulfate	14808-79-8	4.7 J	1.5	5.0	5

		EPA 350.1	mg/l	mg/l	mg/l	
12892	Ammonia Nitrogen	7664-41-7	0.14	0.050	0.10	1

		SM 2320 B-2011	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	
12150	Total Alkalinity to pH 4.5	n.a.	8.0	1.7	5.0	1
12149	Bicarbonate Alkalinity	n.a.	8.0	1.7	5.0	1

*=This limit was used in the evaluation of the final result

Sample Description: SW-MERR-402W-NS Grab Surface Water

Project Name: SGPP-Merrimack NH

Golder Associates

ELLE Sample #: WW 9619229

ELLE Group #: 1945663

Matrix: Surface Water

Submittal Date/Time: 05/18/2018 09:50

Collection Date/Time: 05/17/2018 13:15

SDG#: GOA17-05

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Wet Chemistry						
		SM 2540 D-2011	mg/l	mg/l	mg/l	
13858	Total Suspended Solids	n.a.	1.79 J	1.00	3.00	1
		SM 4500-SO3 B-2011	mg/l	mg/l	mg/l	
00229	Sulfite	14265-45-3	1.5 U	1.5	5.0	1
	The 40 CFR Part 136 requires that this analysis be performed immediately (within 15 minutes) upon sample collection. Because this was not possible, the result may not be used for reporting purposes.					

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	16 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18144009	06/07/2018 15:20	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18144009	05/24/2018 09:10	Courtney J Fatta	1
01750	Calcium	SW-846 6010C	1	181431063602	05/25/2018 12:25	Suzanne M Will	1
01754	Iron	SW-846 6010C	1	181431063602	05/25/2018 12:25	Suzanne M Will	1
01757	Magnesium	SW-846 6010C	1	181431063602	05/25/2018 12:25	Suzanne M Will	1
07058	Manganese	SW-846 6010C	1	181431063602	05/25/2018 12:25	Suzanne M Will	1
01762	Potassium	SW-846 6010C	1	181431063602	05/25/2018 12:25	Suzanne M Will	1
01767	Sodium	SW-846 6010C	1	181431063602	05/25/2018 12:25	Suzanne M Will	1
10636	ICP-WW/TL, 3010A (tot) - U4	SW-846 3010A	1	181431063602	05/24/2018 06:40	Nicholas W Shroyer	1
00224	Chloride	EPA 300.0	1	18138987112A	05/19/2018 02:29	Clinton M Wilson	5
00368	Nitrate Nitrogen	EPA 300.0	1	18138987112A	05/19/2018 02:29	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	18138987112A	05/19/2018 02:29	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	18138987112A	05/19/2018 02:29	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	18143107101A	05/23/2018 18:20	Samuel J Weaver	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-2011	1	18142002202A	05/23/2018 02:09	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-2011	1	18142002202A	05/23/2018 02:09	Jeremy L Bolf	1
13858	Total Suspended Solids	SM 2540 D-2011	1	18143385801A	05/23/2018 14:14	Leroy C Poole	1
00229	Sulfite	SM 4500-SO3 B-2011	1	18142022901A	05/22/2018 10:00	Michelle L Lalli	1

*=This limit was used in the evaluation of the final result

Sample Description: SW-MERR-402W-IC Grab Surface Water

Project Name: SGPP-Merrimack NH

Golder Associates

ELLE Sample #: WW 9619230

ELLE Group #: 1945663

Matrix: Surface Water

Submittal Date/Time: 05/18/2018 09:50

Collection Date/Time: 05/17/2018 13:25

SDG#: GOA17-06

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous EPA 537 Version 1.1 Modified						
14473	NEtFOSAA	2991-50-6	0.88 U	0.88	2.6	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.88 U	0.88	2.6	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonic Acid	375-73-5	0.94	0.26	0.88	1
14473	Perfluorobutanoic acid	375-22-4	1.8 U	1.8	5.3	1
14473	Perfluorodecanoic acid	335-76-2	0.88 U	0.88	1.8	1
14473	Perfluorododecanoic acid	307-55-1	0.26 U	0.26	0.88	1
14473	Perfluoroheptanoic acid	375-85-9	1.8	0.26	0.88	1
14473	Perfluorohexanesulfonic Acid	355-46-4	0.67 J	0.35	1.8	1
14473	Perfluorohexanoic acid	307-24-4	2.8	0.35	1.8	1
14473	Perfluorononanoic acid	375-95-1	0.35 U	0.35	1.8	1
14473	Perfluoro-Octanesulfonic Acid	1763-23-1	1.4 J	0.35	1.8	1
14473	Perfluorooctanoic acid	335-67-1	7.5	0.26	0.88	1
14473	Perfluoropentanoic acid	2706-90-3	2.2 J	1.8	5.3	1
14473	Perfluorotetradecanoic acid	376-06-7	0.26 U	0.26	0.88	1
14473	Perfluorotridecanoic acid	72629-94-8	0.26 U	0.26	0.88	1
14473	Perfluoroundecanoic acid	2058-94-8	0.35 U	0.35	1.8	1
Metals SW-846 6010C						
01750	Calcium	7440-70-2	4.30	0.0600	0.400	1
01754	Iron	7439-89-6	0.381 J	0.0805	0.400	1
01757	Magnesium	7439-95-4	0.849	0.0374	0.200	1
07058	Manganese	7439-96-5	0.0433	0.0016	0.0100	1
01762	Potassium	7440-09-7	0.932 J	0.179	1.00	1
01767	Sodium	7440-23-5	15.8	0.321	2.00	1
Wet Chemistry EPA 300.0						
00224	Chloride	16887-00-6	24.9	1.0	2.0	5
00368	Nitrate Nitrogen	14797-55-8	0.31 J	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	Sulfate	14808-79-8	4.7 J	1.5	5.0	5
EPA 350.1						
12892	Ammonia Nitrogen	7664-41-7	0.13	0.050	0.10	1
SM 2320 B-2011						
12150	Total Alkalinity to pH 4.5	n.a.	7.9	1.7	5.0	1
12149	Bicarbonate Alkalinity	n.a.	7.9	1.7	5.0	1
SM 2540 D-2011						

* = This limit was used in the evaluation of the final result

Sample Description: SW-MERR-402W-IC Grab Surface Water

Project Name: SGPP-Merrimack NH

Golder Associates

ELLE Sample #: WW 9619230

ELLE Group #: 1945663

Matrix: Surface Water

Submission Date/Time: 05/18/2018 09:50

Collection Date/Time: 05/17/2018 13:25

SDG#: GOA17-06

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Wet Chemistry						
13858	Total Suspended Solids	SM 2540 D-2011 n.a.	mg/l 1.19 J	mg/l 1.00	mg/l 3.00	1
Wet Chemistry						
00229	Sulfite	SM 4500-SO3 B-2011 14265-45-3	mg/l 1.5 U	mg/l 1.5	mg/l 5.0	1
The 40 CFR Part 136 requires that this analysis be performed immediately (within 15 minutes) upon sample collection. Because this was not possible, the result may not be used for reporting purposes.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	16 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18144009	06/07/2018 15:36	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18144009	05/24/2018 09:10	Courtney J Fatta	1
01750	Calcium	SW-846 6010C	1	181431063602	05/25/2018 12:28	Suzanne M Will	1
01754	Iron	SW-846 6010C	1	181431063602	05/25/2018 12:28	Suzanne M Will	1
01757	Magnesium	SW-846 6010C	1	181431063602	05/25/2018 12:28	Suzanne M Will	1
07058	Manganese	SW-846 6010C	1	181431063602	05/25/2018 12:28	Suzanne M Will	1
01762	Potassium	SW-846 6010C	1	181431063602	05/25/2018 12:28	Suzanne M Will	1
01767	Sodium	SW-846 6010C	1	181431063602	05/25/2018 12:28	Suzanne M Will	1
10636	ICP-WWW/TL, 3010A (tot) - U4	SW-846 3010A	1	181431063602	05/24/2018 06:40	Nicholas W Shroyer	1
00224	Chloride	EPA 300.0	1	18138987112A	05/19/2018 02:46	Clinton M Wilson	5
00368	Nitrate Nitrogen	EPA 300.0	1	18138987112A	05/19/2018 02:46	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	18138987112A	05/19/2018 02:46	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	18138987112A	05/19/2018 02:46	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	18143107101A	05/23/2018 18:22	Samuel J Weaver	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-2011	1	18142002202A	05/23/2018 01:44	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-2011	1	18142002202A	05/23/2018 01:44	Jeremy L Bolf	1
13858	Total Suspended Solids	SM 2540 D-2011	1	18143385801A	05/23/2018 14:14	Leroy C Poole	1
00229	Sulfite	SM 4500-SO3 B-2011	1	18142022901A	05/22/2018 10:00	Michelle L Lalli	1

*=This limit was used in the evaluation of the final result

Sample Description: SW-MERR-403W-NS Grab Surface Water

Project Name: SGPP-Merrimack NH

Golder Associates

ELLE Sample #: WW 9619231

ELLE Group #: 1945663

Matrix: Surface Water

Submittal Date/Time: 05/18/2018 09:50

Collection Date/Time: 05/17/2018 13:00

SDG#: GOA17-07

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous EPA 537 Version 1.1 Modified						
14473	NEtFOSAA	2991-50-6	0.90 U	0.90	2.7	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.90 U	0.90	2.7	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonic Acid	375-73-5	0.86 J	0.27	0.90	1
14473	Perfluorobutanoic acid	375-22-4	1.8 U	1.8	5.4	1
14473	Perfluorodecanoic acid	335-76-2	0.90 U	0.90	1.8	1
14473	Perfluorododecanoic acid	307-55-1	0.27 U	0.27	0.90	1
14473	Perfluoroheptanoic acid	375-85-9	1.5	0.27	0.90	1
14473	Perfluorohexanesulfonic Acid	355-46-4	0.64 J	0.36	1.8	1
14473	Perfluorohexanoic acid	307-24-4	2.5	0.36	1.8	1
14473	Perfluorononanoic acid	375-95-1	0.36 U	0.36	1.8	1
14473	Perfluoro-Octanesulfonic Acid	1763-23-1	1.3 J	0.36	1.8	1
14473	Perfluorooctanoic acid	335-67-1	6.0	0.27	0.90	1
14473	Perfluoropentanoic acid	2706-90-3	2.1 J	1.8	5.4	1
14473	Perfluorotetradecanoic acid	376-06-7	0.27 U	0.27	0.90	1
14473	Perfluorotridecanoic acid	72629-94-8	0.27 U	0.27	0.90	1
14473	Perfluoroundecanoic acid	2058-94-8	0.36 U	0.36	1.8	1
Metals SW-846 6010C						
01750	Calcium	7440-70-2	4.18	0.0600	0.400	1
01754	Iron	7439-89-6	0.312 J	0.0805	0.400	1
01757	Magnesium	7439-95-4	0.802	0.0374	0.200	1
07058	Manganese	7439-96-5	0.0401	0.0016	0.0100	1
01762	Potassium	7440-09-7	1.03	0.179	1.00	1
01767	Sodium	7440-23-5	15.9	0.321	2.00	1
Wet Chemistry EPA 300.0						
00224	Chloride	16887-00-6	25.3	1.0	2.0	5
00368	Nitrate Nitrogen	14797-55-8	0.31 J	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	Sulfate	14808-79-8	4.5 J	1.5	5.0	5
EPA 350.1						
12892	Ammonia Nitrogen	7664-41-7	0.13	0.050	0.10	1
SM 2320 B-2011						
12150	Total Alkalinity to pH 4.5	n.a.	7.9	1.7	5.0	1
12149	Bicarbonate Alkalinity	n.a.	7.9	1.7	5.0	1
SM 2540 D-2011						

* = This limit was used in the evaluation of the final result

Sample Description: SW-MERR-403W-NS Grab Surface Water

Project Name: SGPP-Merrimack NH

Golder Associates

ELLE Sample #: WW 9619231

ELLE Group #: 1945663

Matrix: Surface Water

Submission Date/Time: 05/18/2018 09:50

Collection Date/Time: 05/17/2018 13:00

SDG#: GOA17-07

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Wet Chemistry						
13858	Total Suspended Solids	SM 2540 D-2011 n.a.	mg/l 2.39 J	mg/l 1.00	mg/l 3.00	1
Wet Chemistry						
00229	Sulfite	SM 4500-SO3 B-2011 14265-45-3	mg/l 1.5 U	mg/l 1.5	mg/l 5.0	1
The 40 CFR Part 136 requires that this analysis be performed immediately (within 15 minutes) upon sample collection. Because this was not possible, the result may not be used for reporting purposes.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	16 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18144009	06/07/2018 15:51	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18144009	05/24/2018 09:10	Courtney J Fatta	1
01750	Calcium	SW-846 6010C	1	181431063602	05/29/2018 09:56	Eric L Eby	1
01754	Iron	SW-846 6010C	1	181431063602	05/29/2018 09:56	Eric L Eby	1
01757	Magnesium	SW-846 6010C	1	181431063602	05/29/2018 09:56	Eric L Eby	1
07058	Manganese	SW-846 6010C	1	181431063602	05/25/2018 12:37	Suzanne M Will	1
01762	Potassium	SW-846 6010C	1	181431063602	05/25/2018 12:37	Suzanne M Will	1
01767	Sodium	SW-846 6010C	1	181431063602	05/25/2018 12:37	Suzanne M Will	1
10636	ICP-WWW/TL, 3010A (tot) - U4	SW-846 3010A	1	181431063602	05/24/2018 06:40	Nicholas W Shroyer	1
00224	Chloride	EPA 300.0	1	18138987112A	05/19/2018 01:37	Clinton M Wilson	5
00368	Nitrate Nitrogen	EPA 300.0	1	18138987112A	05/19/2018 01:37	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	18138987112A	05/19/2018 01:37	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	18138987112A	05/19/2018 01:37	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	18143107101A	05/23/2018 18:23	Samuel J Weaver	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-2011	1	18142002202A	05/23/2018 01:25	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-2011	1	18142002202A	05/23/2018 01:25	Jeremy L Bolf	1
13858	Total Suspended Solids	SM 2540 D-2011	1	18143385801A	05/23/2018 14:14	Leroy C Poole	1
00229	Sulfite	SM 4500-SO3 B-2011	1	18142022901A	05/22/2018 10:00	Michelle L Lalli	1

*=This limit was used in the evaluation of the final result

Sample Description: SW-DB-101 Grab Surface Water

Project Name: SGPP-Merrimack NH

Golder Associates

ELLE Sample #: WW 9619232

ELLE Group #: 1945663

Matrix: Surface Water

Submittal Date/Time: 05/18/2018 09:50

Collection Date/Time: 05/17/2018 10:15

SDG#: GOA17-08

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous EPA 537 Version 1.1 Modified						
14473	NEtFOSAA	2991-50-6	9.0 U	9.0	27	10
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	9.0 U	9.0	27	10
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonic Acid	375-73-5	6.7 J	2.7	9.0	10
14473	Perfluorobutanoic acid	375-22-4	29 J	18	54	10
14473	Perfluorodecanoic acid	335-76-2	9.0 U	9.0	18	10
14473	Perfluorododecanoic acid	307-55-1	2.7 U	2.7	9.0	10
14473	Perfluoroheptanoic acid	375-85-9	85	2.7	9.0	10
14473	Perfluorohexanesulfonic Acid	355-46-4	9.9 J	3.6	18	10
14473	Perfluorohexanoic acid	307-24-4	140	3.6	18	10
14473	Perfluorononanoic acid	375-95-1	5.1 J	3.6	18	10
14473	Perfluoro-Octanesulfonic Acid	1763-23-1	25	3.6	18	10
14473	Perfluorooctanoic acid	335-67-1	530	2.7	9.0	10
14473	Perfluoropentanoic acid	2706-90-3	100	18	54	10
14473	Perfluorotetradecanoic acid	376-06-7	2.7 U	2.7	9.0	10
14473	Perfluorotridecanoic acid	72629-94-8	2.7 U	2.7	9.0	10
14473	Perfluoroundecanoic acid	2058-94-8	3.6 U	3.6	18	10
Reporting limits were raised due to interference from the sample matrix.						
Metals SW-846 6010C						
01750	Calcium	7440-70-2	13.7	0.0600	0.400	1
01754	Iron	7439-89-6	0.568	0.0805	0.400	1
01757	Magnesium	7439-95-4	2.16	0.0374	0.200	1
07058	Manganese	7439-96-5	0.169	0.0016	0.0100	1
01762	Potassium	7440-09-7	2.31	0.179	1.00	1
01767	Sodium	7440-23-5	71.2	0.321	2.00	1
Wet Chemistry EPA 300.0						
00224	Chloride	16887-00-6	118	10.0	20.0	50
00368	Nitrate Nitrogen	14797-55-8	0.90	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	Sulfate	14808-79-8	11.2	1.5	5.0	5
EPA 350.1						
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
SM 2320 B-2011						
12150	Total Alkalinity to pH 4.5	n.a.	11.2	1.7	5.0	1
12149	Bicarbonate Alkalinity	n.a.	11.2	1.7	5.0	1

* = This limit was used in the evaluation of the final result

Sample Description: SW-DB-101 Grab Surface Water

Project Name: SGPP-Merrimack NH

Golder Associates

ELLE Sample #: WW 9619232

ELLE Group #: 1945663

Matrix: Surface Water

Submittal Date/Time: 05/18/2018 09:50

Collection Date/Time: 05/17/2018 10:15

SDG#: GOA17-08

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Wet Chemistry						
13858	Total Suspended Solids	SM 2540 D-2011 n.a.	mg/l 3.88	mg/l 1.00	mg/l 3.00	1
00229	Sulfite	SM 4500-SO3 B-2011 14265-45-3	mg/l 1.5 U	mg/l 1.5	mg/l 5.0	1
The 40 CFR Part 136 requires that this analysis be performed immediately (within 15 minutes) upon sample collection. Because this was not possible, the result may not be used for reporting purposes.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	16 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18144009	05/31/2018 04:41	Devon M Whooley	10
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18144009	05/24/2018 09:10	Courtney J Fatta	1
01750	Calcium	SW-846 6010C	1	181431063602	05/25/2018 12:40	Suzanne M Will	1
01754	Iron	SW-846 6010C	1	181431063602	05/29/2018 09:59	Eric L Eby	1
01757	Magnesium	SW-846 6010C	1	181431063602	05/29/2018 09:59	Eric L Eby	1
07058	Manganese	SW-846 6010C	1	181431063602	05/25/2018 12:40	Suzanne M Will	1
01762	Potassium	SW-846 6010C	1	181431063602	05/25/2018 12:40	Suzanne M Will	1
01767	Sodium	SW-846 6010C	1	181431063602	05/25/2018 12:40	Suzanne M Will	1
10636	ICP-WW/TL, 3010A (tot) - U4	SW-846 3010A	1	181431063602	05/24/2018 06:40	Nicholas W Shroyer	1
00224	Chloride	EPA 300.0	1	18138987112A	05/22/2018 01:48	Clinton M Wilson	50
00368	Nitrate Nitrogen	EPA 300.0	1	18138987112A	05/19/2018 00:27	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	18138987112A	05/19/2018 00:27	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	18138987112A	05/19/2018 00:27	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	18143107101A	05/23/2018 18:25	Samuel J Weaver	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-2011	1	18142002202A	05/23/2018 02:23	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-2011	1	18142002202A	05/23/2018 02:23	Jeremy L Bolf	1
13858	Total Suspended Solids	SM 2540 D-2011	1	18143385801A	05/23/2018 14:14	Leroy C Poole	1
00229	Sulfite	SM 4500-SO3 B-2011	1	18142022901A	05/22/2018 10:00	Michelle L Lalli	1

*=This limit was used in the evaluation of the final result

Sample Description: SW-DB-103 Grab Surface Water

Project Name: SGPP-Merrimack NH

Golder Associates

ELLE Sample #: WW 9619233

ELLE Group #: 1945663

Matrix: Surface Water

Submittal Date/Time: 05/18/2018 09:50

Collection Date/Time: 05/17/2018 14:25

SDG#: GOA17-09

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous		EPA 537 Version 1.1 Modified	ng/l	ng/l	ng/l	
14473	NEtFOSAA	2991-50-6	8.8 U	8.8	26	10
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	8.8 U	8.8	26	10
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonic Acid	375-73-5	7.0 J	2.6	8.8	10
14473	Perfluorobutanoic acid	375-22-4	23 J	18	53	10
14473	Perfluorodecanoic acid	335-76-2	8.8 U	8.8	18	10
14473	Perfluorododecanoic acid	307-55-1	2.6 U	2.6	8.8	10
14473	Perfluoroheptanoic acid	375-85-9	68	2.6	8.8	10
14473	Perfluorohexanesulfonic Acid	355-46-4	8.5 J	3.5	18	10
14473	Perfluorohexanoic acid	307-24-4	110	3.5	18	10
14473	Perfluorononanoic acid	375-95-1	4.9 J	3.5	18	10
14473	Perfluoro-Octanesulfonic Acid	1763-23-1	23	3.5	18	10
14473	Perfluorooctanoic acid	335-67-1	460	2.6	8.8	10
14473	Perfluoropentanoic acid	2706-90-3	86	18	53	10
14473	Perfluorotetradecanoic acid	376-06-7	2.6 U	2.6	8.8	10
14473	Perfluorotridecanoic acid	72629-94-8	2.6 U	2.6	8.8	10
14473	Perfluoroundecanoic acid	2058-94-8	3.5 U	3.5	18	10

Reporting limits were raised due to interference from the sample matrix.

Metals		SW-846 6010C	mg/l	mg/l	mg/l	
01750	Calcium	7440-70-2	13.6	0.0600	0.400	1
01754	Iron	7439-89-6	0.186 J	0.0805	0.400	1
01757	Magnesium	7439-95-4	2.20	0.0374	0.200	1
07058	Manganese	7439-96-5	0.0768	0.0016	0.0100	1
01762	Potassium	7440-09-7	2.35	0.179	1.00	1
01767	Sodium	7440-23-5	72.6	0.321	2.00	1
Wet Chemistry		EPA 300.0	mg/l	mg/l	mg/l	
00224	Chloride	16887-00-6	122	10.0	20.0	50
00368	Nitrate Nitrogen	14797-55-8	0.95	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	Sulfate	14808-79-8	11.3	1.5	5.0	5
		EPA 350.1	mg/l	mg/l	mg/l	
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
		SM 2320 B-2011	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	
12150	Total Alkalinity to pH 4.5	n.a.	10.2	1.7	5.0	1
12149	Bicarbonate Alkalinity	n.a.	10.2	1.7	5.0	1

* = This limit was used in the evaluation of the final result

Analysis Report

Sample Description: SW-DB-103 Grab Surface Water**Project Name:** SGPP-Merrimack NH**Golder Associates****ELLE Sample #:** WW 9619233**ELLE Group #:** 1945663**Matrix:** Surface Water**Submittal Date/Time:** 05/18/2018 09:50**Collection Date/Time:** 05/17/2018 14:25**SDG#:** GOA17-09

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Wet Chemistry						
13858	Total Suspended Solids	SM 2540 D-2011 n.a.	mg/l 3.13	mg/l 1.00	mg/l 3.00	1
00229	Sulfite	SM 4500-SO3 B-2011 14265-45-3	mg/l 1.5 U	mg/l 1.5	mg/l 5.0	1
The 40 CFR Part 136 requires that this analysis be performed immediately (within 15 minutes) upon sample collection. Because this was not possible, the result may not be used for reporting purposes.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	16 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18144009	05/31/2018 04:57	Devon M Whooley	10
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18144009	05/24/2018 09:10	Courtney J Fatta	1
01750	Calcium	SW-846 6010C	1	181431063602	05/25/2018 12:43	Suzanne M Will	1
01754	Iron	SW-846 6010C	1	181431063602	05/29/2018 10:03	Eric L Eby	1
01757	Magnesium	SW-846 6010C	1	181431063602	05/29/2018 10:03	Eric L Eby	1
07058	Manganese	SW-846 6010C	1	181431063602	05/25/2018 12:43	Suzanne M Will	1
01762	Potassium	SW-846 6010C	1	181431063602	05/25/2018 12:43	Suzanne M Will	1
01767	Sodium	SW-846 6010C	1	181431063602	05/25/2018 12:43	Suzanne M Will	1
10636	ICP-WWW/TL, 3010A (tot) - U4	SW-846 3010A	1	181431063602	05/24/2018 06:40	Nicholas W Shroyer	1
00224	Chloride	EPA 300.0	1	18138987112A	05/22/2018 03:18	Clinton M Wilson	50
00368	Nitrate Nitrogen	EPA 300.0	1	18138987112A	05/19/2018 03:04	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	18138987112A	05/19/2018 03:04	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	18138987112A	05/19/2018 03:04	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	18143107101A	05/23/2018 18:27	Samuel J Weaver	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-2011	1	18142002202A	05/23/2018 01:17	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-2011	1	18142002202A	05/23/2018 01:17	Jeremy L Bolf	1
13858	Total Suspended Solids	SM 2540 D-2011	1	18143385801A	05/23/2018 14:15	Leroy C Poole	1
00229	Sulfite	SM 4500-SO3 B-2011	1	18142022901A	05/22/2018 10:00	Michelle L Lalli	1

*This limit was used in the evaluation of the final result

Sample Description: SW-DB-104 Grab Surface Water

Project Name: SGPP-Merrimack NH

Golder Associates

ELLE Sample #: WW 9619234

ELLE Group #: 1945663

Matrix: Surface Water

Submittal Date/Time: 05/18/2018 09:50

Collection Date/Time: 05/17/2018 16:00

SDG#: GOA17-10

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous		EPA 537 Version 1.1 Modified	ng/l	ng/l	ng/l	
14473	NEtFOSAA	2991-50-6	8.8 U	8.8	26	10
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	8.8 U	8.8	26	10
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonic Acid	375-73-5	6.9 J	2.6	8.8	10
14473	Perfluorobutanoic acid	375-22-4	20 J	18	53	10
14473	Perfluorodecanoic acid	335-76-2	8.8 U	8.8	18	10
14473	Perfluorododecanoic acid	307-55-1	2.6 U	2.6	8.8	10
14473	Perfluoroheptanoic acid	375-85-9	62	2.6	8.8	10
14473	Perfluorohexanesulfonic Acid	355-46-4	7.6 J	3.5	18	10
14473	Perfluorohexanoic acid	307-24-4	98	3.5	18	10
14473	Perfluorononanoic acid	375-95-1	4.7 J	3.5	18	10
14473	Perfluoro-Octanesulfonic Acid	1763-23-1	22	3.5	18	10
14473	Perfluorooctanoic acid	335-67-1	420	2.6	8.8	10
14473	Perfluoropentanoic acid	2706-90-3	75	18	53	10
14473	Perfluorotetradecanoic acid	376-06-7	2.6 U	2.6	8.8	10
14473	Perfluorotridecanoic acid	72629-94-8	2.6 U	2.6	8.8	10
14473	Perfluoroundecanoic acid	2058-94-8	3.5 U	3.5	18	10

Reporting limits were raised due to interference from the sample matrix.

Metals		SW-846 6010C	mg/l	mg/l	mg/l	
01750	Calcium	7440-70-2	13.7	0.0600	0.400	1
01754	Iron	7439-89-6	0.207 J	0.0805	0.400	1
01757	Magnesium	7439-95-4	2.18	0.0374	0.200	1
07058	Manganese	7439-96-5	0.0857	0.0016	0.0100	1
01762	Potassium	7440-09-7	2.39	0.179	1.00	1
01767	Sodium	7440-23-5	73.3	0.321	2.00	1
Wet Chemistry		EPA 300.0	mg/l	mg/l	mg/l	
00224	Chloride	16887-00-6	109	10.0	20.0	50
00368	Nitrate Nitrogen	14797-55-8	1.1	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	Sulfate	14808-79-8	12.8	1.5	5.0	5
		EPA 350.1	mg/l	mg/l	mg/l	
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
		SM 2320 B-2011	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	
12150	Total Alkalinity to pH 4.5	n.a.	11.3	1.7	5.0	1
12149	Bicarbonate Alkalinity	n.a.	11.3	1.7	5.0	1

*=This limit was used in the evaluation of the final result

Sample Description: SW-DB-104 Grab Surface Water

Project Name: SGPP-Merrimack NH

Golder Associates

ELLE Sample #: WW 9619234

ELLE Group #: 1945663

Matrix: Surface Water

Submittal Date/Time: 05/18/2018 09:50

Collection Date/Time: 05/17/2018 16:00

SDG#: GOA17-10

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Wet Chemistry						
13858	Total Suspended Solids	SM 2540 D-2011 n.a.	mg/l 4.63	mg/l 1.00	mg/l 3.00	1
00229	Sulfite	SM 4500-SO3 B-2011 14265-45-3	mg/l 1.5 U	mg/l 1.5	mg/l 5.0	1
The 40 CFR Part 136 requires that this analysis be performed immediately (within 15 minutes) upon sample collection. Because this was not possible, the result may not be used for reporting purposes.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	16 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18144009	05/31/2018 05:12	Devon M Whooley	10
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18144009	05/24/2018 09:10	Courtney J Fatta	1
01750	Calcium	SW-846 6010C	1	181431063602	05/25/2018 12:46	Suzanne M Will	1
01754	Iron	SW-846 6010C	1	181431063602	05/29/2018 10:06	Eric L Eby	1
01757	Magnesium	SW-846 6010C	1	181431063602	05/29/2018 10:06	Eric L Eby	1
07058	Manganese	SW-846 6010C	1	181431063602	05/25/2018 12:46	Suzanne M Will	1
01762	Potassium	SW-846 6010C	1	181431063602	05/25/2018 12:46	Suzanne M Will	1
01767	Sodium	SW-846 6010C	1	181431063602	05/25/2018 12:46	Suzanne M Will	1
10636	ICP-WW/TL, 3010A (tot) - U4	SW-846 3010A	1	181431063602	05/24/2018 06:40	Nicholas W Shroyer	1
00224	Chloride	EPA 300.0	1	18138987112A	05/22/2018 04:12	Clinton M Wilson	50
00368	Nitrate Nitrogen	EPA 300.0	1	18138987112A	05/19/2018 03:56	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	18138987112A	05/19/2018 03:56	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	18138987112A	05/19/2018 03:56	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	18143107101B	05/23/2018 18:48	Samuel J Weaver	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-2011	1	18142002202A	05/23/2018 01:32	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-2011	1	18142002202A	05/23/2018 01:32	Jeremy L Bolf	1
13858	Total Suspended Solids	SM 2540 D-2011	1	18143385801A	05/23/2018 14:15	Leroy C Poole	1
00229	Sulfite	SM 4500-SO3 B-2011	1	18142022901A	05/22/2018 10:00	Michelle L Lalli	1

*=This limit was used in the evaluation of the final result

Sample Description: SW-DB-105 Grab Surface Water

Project Name: SGPP-Merrimack NH

Golder Associates

ELLE Sample #: WW 9619235

ELLE Group #: 1945663

Matrix: Surface Water

Submittal Date/Time: 05/18/2018 09:50

Collection Date/Time: 05/17/2018 14:50

SDG#: GOA17-11

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous		EPA 537 Version 1.1 Modified	ng/l	ng/l	ng/l	
14473	NEtFOSAA	2991-50-6	8.9 U	8.9	27	10
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	8.9 U	8.9	27	10
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonic Acid	375-73-5	6.7 J	2.7	8.9	10
14473	Perfluorobutanoic acid	375-22-4	21 J	18	53	10
14473	Perfluorodecanoic acid	335-76-2	8.9 U	8.9	18	10
14473	Perfluorododecanoic acid	307-55-1	2.7 U	2.7	8.9	10
14473	Perfluoroheptanoic acid	375-85-9	61	2.7	8.9	10
14473	Perfluorohexanesulfonic Acid	355-46-4	6.7 J	3.5	18	10
14473	Perfluorohexanoic acid	307-24-4	100	3.5	18	10
14473	Perfluorononanoic acid	375-95-1	4.7 J	3.5	18	10
14473	Perfluoro-Octanesulfonic Acid	1763-23-1	23	3.5	18	10
14473	Perfluorooctanoic acid	335-67-1	380	2.7	8.9	10
14473	Perfluoropentanoic acid	2706-90-3	77	18	53	10
14473	Perfluorotetradecanoic acid	376-06-7	2.7 U	2.7	8.9	10
14473	Perfluorotridecanoic acid	72629-94-8	2.7 U	2.7	8.9	10
14473	Perfluoroundecanoic acid	2058-94-8	3.5 U	3.5	18	10

Reporting limits were raised due to interference from the sample matrix.

Metals		SW-846 6010C	mg/l	mg/l	mg/l	
01750	Calcium	7440-70-2	13.7	0.0600	0.400	1
01754	Iron	7439-89-6	0.203 J	0.0805	0.400	1
01757	Magnesium	7439-95-4	2.17	0.0374	0.200	1
07058	Manganese	7439-96-5	0.101	0.0016	0.0100	1
01762	Potassium	7440-09-7	2.36	0.179	1.00	1
01767	Sodium	7440-23-5	74.3	0.321	2.00	1
Wet Chemistry		EPA 300.0	mg/l	mg/l	mg/l	
00224	Chloride	16887-00-6	122	10.0	20.0	50
00368	Nitrate Nitrogen	14797-55-8	1.1	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	Sulfate	14808-79-8	11.9	1.5	5.0	5
		EPA 350.1	mg/l	mg/l	mg/l	
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
		SM 2320 B-2011	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	
12150	Total Alkalinity to pH 4.5	n.a.	11.6	1.7	5.0	1
12149	Bicarbonate Alkalinity	n.a.	11.6	1.7	5.0	1

* = This limit was used in the evaluation of the final result

Sample Description: SW-DB-105 Grab Surface Water

Project Name: SGPP-Merrimack NH

Golder Associates

ELLE Sample #: WW 9619235

ELLE Group #: 1945663

Matrix: Surface Water

Submission Date/Time: 05/18/2018 09:50

Collection Date/Time: 05/17/2018 14:50

SDG#: GOA17-11

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Wet Chemistry						
13858	Total Suspended Solids	SM 2540 D-2011 n.a.	mg/l 1.94 J	mg/l 1.00	mg/l 3.00	1
00229	Sulfite	SM 4500-SO3 B-2011 14265-45-3	mg/l 1.5 U	mg/l 1.5	mg/l 5.0	1
The 40 CFR Part 136 requires that this analysis be performed immediately (within 15 minutes) upon sample collection. Because this was not possible, the result may not be used for reporting purposes.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	16 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18144009	05/31/2018 05:28	Devon M Whooley	10
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18144009	05/24/2018 09:10	Courtney J Fatta	1
01750	Calcium	SW-846 6010C	1	181431063602	05/25/2018 12:49	Suzanne M Will	1
01754	Iron	SW-846 6010C	1	181431063602	05/29/2018 10:09	Eric L Eby	1
01757	Magnesium	SW-846 6010C	1	181431063602	05/29/2018 10:09	Eric L Eby	1
07058	Manganese	SW-846 6010C	1	181431063602	05/25/2018 12:49	Suzanne M Will	1
01762	Potassium	SW-846 6010C	1	181431063602	05/25/2018 12:49	Suzanne M Will	1
01767	Sodium	SW-846 6010C	1	181431063602	05/25/2018 12:49	Suzanne M Will	1
10636	ICP-WWW/TL, 3010A (tot) - U4	SW-846 3010A	1	181431063602	05/24/2018 06:40	Nicholas W Shroyer	1
00224	Chloride	EPA 300.0	1	18138987112A	05/22/2018 03:36	Clinton M Wilson	50
00368	Nitrate Nitrogen	EPA 300.0	1	18138987112A	05/19/2018 03:21	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	18138987112A	05/19/2018 03:21	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	18138987112A	05/19/2018 03:21	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	18143107101B	05/23/2018 18:50	Samuel J Weaver	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-2011	1	18142002202A	05/23/2018 01:51	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-2011	1	18142002202A	05/23/2018 01:51	Jeremy L Bolf	1
13858	Total Suspended Solids	SM 2540 D-2011	1	18143385801A	05/23/2018 14:15	Leroy C Poole	1
00229	Sulfite	SM 4500-SO3 B-2011	1	18142022901A	05/22/2018 10:00	Michelle L Lalli	1

*=This limit was used in the evaluation of the final result

Sample Description: SW-DB-106 Grab Surface Water

Project Name: SGPP-Merrimack NH

Golder Associates

ELLE Sample #: WW 9619236

ELLE Group #: 1945663

Matrix: Surface Water

Submittal Date/Time: 05/18/2018 09:50

Collection Date/Time: 05/17/2018 15:15

SDG#: GOA17-12

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous		EPA 537 Version 1.1 Modified	ng/l	ng/l	ng/l	
14473	NEtFOSAA	2991-50-6	8.7 U	8.7	26	10
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	8.7 U	8.7	26	10
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonic Acid	375-73-5	6.9 J	2.6	8.7	10
14473	Perfluorobutanoic acid	375-22-4	20 J	17	52	10
14473	Perfluorodecanoic acid	335-76-2	8.7 U	8.7	17	10
14473	Perfluorododecanoic acid	307-55-1	2.6 U	2.6	8.7	10
14473	Perfluoroheptanoic acid	375-85-9	58	2.6	8.7	10
14473	Perfluorohexanesulfonic Acid	355-46-4	6.6 J	3.5	17	10
14473	Perfluorohexanoic acid	307-24-4	95	3.5	17	10
14473	Perfluorononanoic acid	375-95-1	4.4 J	3.5	17	10
14473	Perfluoro-Octanesulfonic Acid	1763-23-1	21	3.5	17	10
14473	Perfluorooctanoic acid	335-67-1	360	2.6	8.7	10
14473	Perfluoropentanoic acid	2706-90-3	70	17	52	10
14473	Perfluorotetradecanoic acid	376-06-7	2.6 U	2.6	8.7	10
14473	Perfluorotridecanoic acid	72629-94-8	2.6 U	2.6	8.7	10
14473	Perfluoroundecanoic acid	2058-94-8	3.5 U	3.5	17	10

Reporting limits were raised due to interference from the sample matrix.

Metals		SW-846 6010C	mg/l	mg/l	mg/l	
01750	Calcium	7440-70-2	13.7	0.0600	0.400	1
01754	Iron	7439-89-6	0.201 J	0.0805	0.400	1
01757	Magnesium	7439-95-4	2.22	0.0374	0.200	1
07058	Manganese	7439-96-5	0.105	0.0016	0.0100	1
01762	Potassium	7440-09-7	2.29	0.179	1.00	1
01767	Sodium	7440-23-5	74.3	0.321	2.00	1
Wet Chemistry		EPA 300.0	mg/l	mg/l	mg/l	
00224	Chloride	16887-00-6	125	10.0	20.0	50
00368	Nitrate Nitrogen	14797-55-8	1.0	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	Sulfate	14808-79-8	12.9	1.5	5.0	5
		EPA 350.1	mg/l	mg/l	mg/l	
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
		SM 2320 B-2011	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	
12150	Total Alkalinity to pH 4.5	n.a.	11.9	1.7	5.0	1
12149	Bicarbonate Alkalinity	n.a.	11.9	1.7	5.0	1

* = This limit was used in the evaluation of the final result

Sample Description: SW-DB-106 Grab Surface Water

Project Name: SGPP-Merrimack NH

Golder Associates

ELLE Sample #: WW 9619236

ELLE Group #: 1945663

Matrix: Surface Water

Submission Date/Time: 05/18/2018 09:50

Collection Date/Time: 05/17/2018 15:15

SDG#: GOA17-12

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Wet Chemistry						
13858	Total Suspended Solids	SM 2540 D-2011 n.a.	mg/l 2.09 J	mg/l 1.00	mg/l 3.00	1
00229	Sulfite	SM 4500-SO3 B-2011 14265-45-3	mg/l 1.5 U	mg/l 1.5	mg/l 5.0	1
The 40 CFR Part 136 requires that this analysis be performed immediately (within 15 minutes) upon sample collection. Because this was not possible, the result may not be used for reporting purposes.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	16 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18144009	05/31/2018 05:43	Devon M Whooley	10
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18144009	05/24/2018 09:10	Courtney J Fatta	1
01750	Calcium	SW-846 6010C	1	181431063602	05/25/2018 12:53	Suzanne M Will	1
01754	Iron	SW-846 6010C	1	181431063602	05/29/2018 10:12	Eric L Eby	1
01757	Magnesium	SW-846 6010C	1	181431063602	05/29/2018 10:12	Eric L Eby	1
07058	Manganese	SW-846 6010C	1	181431063602	05/25/2018 12:53	Suzanne M Will	1
01762	Potassium	SW-846 6010C	1	181431063602	05/25/2018 12:53	Suzanne M Will	1
01767	Sodium	SW-846 6010C	1	181431063602	05/25/2018 12:53	Suzanne M Will	1
10636	ICP-WWW/TL, 3010A (tot) - U4	SW-846 3010A	1	181431063602	05/24/2018 06:40	Nicholas W Shroyer	1
00224	Chloride	EPA 300.0	1	18138987112A	05/22/2018 03:54	Clinton M Wilson	50
00368	Nitrate Nitrogen	EPA 300.0	1	18138987112A	05/19/2018 03:39	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	18138987112A	05/19/2018 03:39	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	18138987112A	05/19/2018 03:39	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	18143107101B	05/23/2018 18:52	Samuel J Weaver	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-2011	1	18142002202A	05/23/2018 02:15	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-2011	1	18142002202A	05/23/2018 02:15	Jeremy L Bolf	1
13858	Total Suspended Solids	SM 2540 D-2011	1	18143385801A	05/23/2018 14:15	Leroy C Poole	1
00229	Sulfite	SM 4500-SO3 B-2011	1	18142022901A	05/22/2018 10:00	Michelle L Lalli	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: Golder Associates
Reported: 06/12/2018 11:09

Group Number: 1945663

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 ng/l	MDL** ng/l	LOQ ng/l
Batch number: 18144009	Sample number(s): 9619228-9619236		
NEtFOSAA	1.0 U	1.0	3.0
NMeFOSAA	1.0 U	1.0	3.0
Perfluorobutanesulfonic Acid	0.30 U	0.30	1.0
Perfluorobutanoic acid	2.0 U	2.0	6.0
Perfluorodecanoic acid	1.0 U	1.0	2.0
Perfluorododecanoic acid	0.30 U	0.30	1.0
Perfluoroheptanoic acid	0.30 U	0.30	1.0
Perfluorohexanesulfonic Acid	0.40 U	0.40	2.0
Perfluorohexanoic acid	0.40 U	0.40	2.0
Perfluorononanoic acid	0.40 U	0.40	2.0
Perfluoro-Octanesulfonic Acid	0.40 U	0.40	2.0
Perfluorooctanoic acid	0.30 U	0.30	1.0
Perfluoropentanoic acid	2.0 U	2.0	6.0
Perfluorotetradecanoic acid	0.30 U	0.30	1.0
Perfluorotridecanoic acid	0.30 U	0.30	1.0
Perfluoroundecanoic acid	0.40 U	0.40	2.0
	mg/l	mg/l	mg/l
Batch number: 181431063602	Sample number(s): 9619228-9619236		
Calcium	0.0600 U	0.0600	0.400
Iron	0.0805 U	0.0805	0.400
Magnesium	0.0374 U	0.0374	0.200
Manganese	0.0016 U	0.0016	0.0100
Potassium	0.179 U	0.179	1.00
Sodium	0.321 U	0.321	2.00
Batch number: 18138987112A	Sample number(s): 9619228-9619236		
Chloride	0.20 U	0.20	0.40
Nitrate Nitrogen	0.050 U	0.050	0.10
Nitrite Nitrogen	0.050 U	0.050	0.10
Sulfate	0.30 U	0.30	1.0
Batch number: 18143107101A	Sample number(s): 9619228-9619233		
Ammonia Nitrogen	0.050 U	0.050	0.10
Batch number: 18143107101B	Sample number(s): 9619234-9619236		
Ammonia Nitrogen	0.050 U	0.050	0.10
Batch number: 18142022901A	Sample number(s): 9619228-9619236		
Sulfite	1.5 U	1.5	5.0

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(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: Golder Associates
Reported: 06/12/2018 11:09

Group Number: 1945663

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Batch number: 18143385801A	Sample number(s): 9619228-9619236		
Total Suspended Solids	1.00 U	1.00	3.00
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3
Batch number: 18142002202A	Sample number(s): 9619228-9619236		
Total Alkalinity to pH 4.5	1.7 U	1.7	5.0

LCS/LCSD

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
Batch number: 18144009	Sample number(s): 9619228-9619236								
NEtFOSAA	5.44	5.34			98		55-169		
NMeFOSAA	5.44	5.13			94		62-167		
Perfluorobutanesulfonic Acid	4.81	4.97			103		73-128		
Perfluorobutanoic acid	5.44	5.56			102		74-142		
Perfluorodecanoic acid	5.44	6.20			114		69-148		
Perfluorododecanoic acid	5.44	5.76			106		75-136		
Perfluoroheptanoic acid	5.44	5.99			110		76-140		
Perfluorohexanesulfonic Acid	5.14	4.84			94		71-131		
Perfluorohexanoic acid	5.44	6.00			110		75-135		
Perfluorononanoic acid	5.44	6.25			115		72-148		
Perfluoro-Octanesulfonic Acid	5.20	4.82			93		67-138		
Perfluorooctanoic acid	5.44	5.72			105		72-138		
Perfluoropentanoic acid	5.44	5.52			102		74-134		
Perfluorotetradecanoic acid	5.44	5.89			108		74-135		
Perfluorotridecanoic acid	5.44	5.71			105		61-145		
Perfluoroundecanoic acid	5.44	5.86			108		75-146		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 181431063602	Sample number(s): 9619228-9619236								
Calcium	4.00	4.17			104		88-112		
Iron	1.00	1.01			101		80-114		
Magnesium	2.00	2.06			103		88-114		
Manganese	0.500	0.510			102		90-112		
Potassium	10	10.5			105		88-112		
Sodium	10	10.32			103		87-112		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 18138987112A	Sample number(s): 9619228-9619236								

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(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: Golder Associates
Reported: 06/12/2018 11:09

Group Number: 1945663

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/l	LCS Conc mg/l	LCSD Spike Added mg/l	LCSD Conc mg/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Chloride	3.00	3.09	3.00	3.07	103	102	90-110	1	20
Nitrate Nitrogen	0.750	0.684	0.750	0.681	91	91	90-110	0	20
Nitrite Nitrogen	0.750	0.733	0.750	0.730	98	97	90-110	0	20
Sulfate	7.50	7.88	7.50	7.85	105	105	90-110	0	20
Batch number: 18143107101A	Sample number(s): 9619228-9619233								
Ammonia Nitrogen	1.50	1.47	1.50	1.50	98	100	90-110	2	15
Batch number: 18143107101B	Sample number(s): 9619234-9619236								
Ammonia Nitrogen	1.50	1.47	1.50	1.50	98	100	90-110	2	15
	mg/l	mg/l	mg/l	mg/l					
Batch number: 18142022901A	Sample number(s): 9619228-9619236								
Sulfite	50	46			92		79-105		
Batch number: 18143385801A	Sample number(s): 9619228-9619236								
Total Suspended Solids	150	144.1	150	147.3	96	98	89-105	2	5
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 18142002202A	Sample number(s): 9619228-9619236								
Total Alkalinity to pH 4.5	188	175.72			93		77-109		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/l	MS Spike Added ng/l	MS Conc ng/l	MSD Spike Added ng/l	MSD Conc ng/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 18144009	Sample number(s): 9619228-9619236 UNSPK: P618578									
NEtFOSAA	0.89 U	4.88	5.59	4.90	5.65	115	115	70-130	1	30
NMeFOSAA	0.89 U	4.88	6.06	4.90	5.53	124	113	70-130	9	30
Perfluorobutanesulfonic Acid	6.38	4.31	11.06	4.34	10.56	109	96	70-130	5	30
Perfluorobutanoic acid	16.18	4.88	23.06	4.90	22.04	141*	120	70-130	5	30
Perfluorodecanoic acid	0.917	4.88	6.55	4.90	8.04	115	145*	70-130	21	30
Perfluorododecanoic acid	0.27 U	4.88	6.01	4.90	5.92	123	121	70-130	2	30
Perfluoroheptanoic acid	50.64	4.88	57.66	4.90	55.35	144 (2)	96 (2)	70-130	4	30
Perfluorohexanesulfonic Acid	6.48	4.61	11.94	4.64	11.42	118	107	70-130	4	30
Perfluorohexanoic acid	81.54	4.88	85.4	4.90	85.94	79 (2)	90 (2)	70-130	1	30
Perfluorononanoic acid	2.26	4.88	9.16	4.90	8.12	141*	119	70-130	12	30
Perfluoro-Octanesulfonic Acid	13.09	4.66	21.11	4.69	17.6	172*	96	70-130	18	30
Perfluorooctanoic acid	329.54	4.88	371.23	4.90	325.08	855 (2)	-90 (2)	70-130	13	30

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(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: Golder Associates
Reported: 06/12/2018 11:09

Group Number: 1945663

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/l	MS Spike Added ng/l	MS Conc ng/l	MSD Spike Added ng/l	MSD Conc ng/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Perfluoropentanoic acid	45.98	4.88	53.31	4.90	51.33	150 (2)	109 (2)	70-130	4	30
Perfluorotetradecanoic acid	0.27 U	4.88	17.2	4.90	5.91	353*	121	70-130	98*	30
Perfluorotridecanoic acid	0.27 U	4.88	5.72	4.90	5.71	117	117	70-130	0	30
Perfluoroundecanoic acid	0.35 U	4.88	5.74	4.90	5.32	118	109	70-130	8	30
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 181431063602	Sample number(s): 9619228-9619236 UNSPK: 9619228									
Calcium	0.0600 U	4.00	4.19	4.00	4.13	105	103	75-125	2	20
Iron	0.0805 U	1.00	1.01	1.00	0.971	101	97	75-125	4	20
Magnesium	0.0374 U	2.00	2.07	2.00	2.04	103	102	75-125	1	20
Manganese	0.0016 U	0.500	0.512	0.500	0.504	102	101	75-125	2	20
Potassium	0.179 U	10	10.33	10	10.18	103	102	75-125	2	20
Sodium	0.321 U	10	10.21	10	10.05	102	101	75-125	2	20
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 18138987112A	Sample number(s): 9619228-9619236 UNSPK: 9619231									
Chloride	25.33	10	38.73			134*		90-110		
Nitrate Nitrogen	0.312	2.50	3.69			135*		90-110		
Nitrite Nitrogen	0.25 U	2.50	3.27			131*		90-110		
Sulfate	4.53	25	38.77			137*		90-110		
Batch number: 18143107101A	Sample number(s): 9619228-9619233 UNSPK: P614860									
Ammonia Nitrogen	7.49	20	28.8			107		90-110		
Batch number: 18143107101B	Sample number(s): 9619234-9619236 UNSPK: P618578									
Ammonia Nitrogen	0.050 U	1.00	1.08			108		90-110		
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 18142022901A	Sample number(s): 9619228-9619236 UNSPK: P618570									
Sulfite	1.5 U	50	47.5	50	48	95	96	79-105	1	5
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 18142002202A	Sample number(s): 9619228-9619236 UNSPK: P620327									
Total Alkalinity to pH 4.5	218.35	188	381.32			87		77-109		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
---------------	----------	----------	---------	-------------

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(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: Golder Associates
Reported: 06/12/2018 11:09

Group Number: 1945663

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
Batch number: 181431063602	Sample number(s): 9619228-9619236 BKG: 9619228			
Calcium	0.0600 U	0.0600 U	0 (1)	20
Iron	0.0805 U	0.0805 U	0 (1)	20
Magnesium	0.0374 U	0.0374 U	0 (1)	20
Manganese	0.0016 U	0.0016 U	0 (1)	20
Potassium	0.179 U	0.179 U	0 (1)	20
Sodium	0.321 U	0.321 U	0 (1)	20
Batch number: 18138987112A	Sample number(s): 9619228-9619236 BKG: 9619231			
Chloride	25.33	23.58	7	15
Nitrate Nitrogen	0.312	0.25 U	200* (1)	15
Nitrite Nitrogen	0.25 U	0.25 U	0 (1)	15
Sulfate	4.53	5.08	11 (1)	15
Batch number: 18143107101A	Sample number(s): 9619228-9619233 BKG: P614860			
Ammonia Nitrogen	7.49	7.79	4 (1)	20
Batch number: 18143107101B	Sample number(s): 9619234-9619236 BKG: P618578			
Ammonia Nitrogen	0.050 U	0.050 U	0 (1)	20
Batch number: 18142022901A	Sample number(s): 9619228-9619236 BKG: P618570			
Sulfite	1.5 U	1.5 U	0 (1)	20
Batch number: 18143385801A	Sample number(s): 9619228-9619236 BKG: P620338			
Total Suspended Solids	49	49	0 (1)	5
Batch number: 18142002202A	Sample number(s): 9619228-9619236 BKG: P620327			
Total Alkalinity to pH 4.5	218.35	221.26	1	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 16 PFAS Compounds
Batch number: 18144009

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9619228	73	72	68	75	75	74
9619229	86	134	152*	72	79	82

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(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: Golder Associates
Reported: 06/12/2018 11:09

Group Number: 1945663

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 16 PFAS Compounds
Batch number: 18144009

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9619230	78	124	141	69	82	80
9619231	78	126	146	65	77	73
9619232	101	105	105	100	96	102
9619233	94	99	92	105	96	99
9619234	100	102	99	105	97	102
9619235	99	103	100	97	94	100
9619236	98	103	97	97	92	97
Blank	83	84	80	89	82	86
LCS	90	90	91	85	86	87
MS	74	113	140	70	96	100
MSD	78	117	144	79	104	109

Limits: 33-123 39-135 26-148 31-128 34-126 35-126

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	d3-NMeFOSAA	13C7-PFUnDA
9619228	69	84	92	75	69	72
9619229	79	87	93	76	64	73
9619230	76	73	80	78	67	73
9619231	77	72	77	68	69	76
9619232	100	97	113	104	122*	118
9619233	99	99	111	102	113	115
9619234	100	101	111	97	112	117
9619235	96	95	104	93	116	112
9619236	101	99	110	93	119	104
Blank	83	86	93	82	93	97
LCS	88	96	93	84	107	99
MS	69	75	74	70	62	70
MSD	79	81	78	78	76	82

Limits: 43-112 43-115 32-134 40-115 17-120 30-128

	d5-NEtFOSAA	13C2-PFDODA	13C2-PFTeDA
9619228	68	67	68
9619229	72	70	59
9619230	68	67	58
9619231	58	66	61
9619232	115	121	109
9619233	102	110	103
9619234	99	105	100
9619235	91	110	107
9619236	109	107	109
Blank	92	88	85

*- Outside of specification

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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: Golder Associates
Reported: 06/12/2018 11:09

Group Number: 1945663

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 16 PFAS Compounds

Batch number: 18144009

	d5-NEtFOSAA	13C2-PFD _o DA	13C2-PFTeDA
LCS	93	91	91
MS	60	59	53
MSD	67	70	65
Limits:	21-135	28-127	26-119

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

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(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.

Environmental Analysis Request/Chain of Custody



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Acct. # 10253 Group # 1945663 Sample # 9619228-36

COC # **549872**

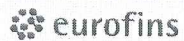
Client Information				Matrix				Analysis Requested												For Lab Use Only					
Client: <u>Golden Associates</u>		Acct. #:		☐ Tissue ☐ Ground ☒ Surface		☐ Potable ☐ NPDES ☐ Water		☐ Sediment ☐ Other:		Total # of Containers		Preservation Codes												FSC: _____	
Project Name/#: <u>SGPP/166-8623</u>		PWSID #:																						SCR#: _____	
Project Manager: <u>Jim Peace</u>		P.O. #:																							
Sampler: <u>Scott Drew</u>		Quote #:																							
State where samples were collected: <u>NH</u>		For Compliance: Yes ☐ No ☐																							
Sample Identification		Collected		Grab	Composite	Soil	Water	Other:	Total # of Containers	PFAS (16 compounds) PFAS (32 compounds) HFTODA "len X" ADONA 6 metals (Cu, Fe, Hg, Mn, Ni, Pb) 17 metals* chloride, nitrate, nitrite, sulfate Bicarbonate alkalinity sulfite Ammonia Nitrogen TSS												Preservation Codes			
		Date	Time																			H=HCl T=Thiosulfate N=HNO ₃ B=NaOH S=H ₂ SO ₄ O=Other			
SW-MERR-301W-NS	5/17/18	850	X				X		8	X				X	X	X	X	X	There are						
DUP-2		850	X				X		8	X				X	X	X	X	X	6 coolers total						
SW-MERR-302W-NS		925	X				X		8	X				X	X	X	X	X							
SW-MERR-302W-IC		945	X				X		8	X				X	X	X	X	X							
SW-MERR-303W-NS		1030	X				X		8	X				X	X	X	X	X							
EB-2		1000	X				X		10	X	X	X	X	X	X	X	X	X							
FB-2		1010	X				X		2	X															
SW-MERR-401W-NS		1105	X				X		8	X				X	X	X	X	X							
SW-MERR-402W-NS		1315	X				X		8	X				X	X	X	X	X							
SW-MERR-402W-IC	✓	1325	X				X		8	X				X	X	X	X	X							

Turnaround Time (TAT) Requested (please circle) Standard <u>Standard</u> Rush				Relinquished by <u>[Signature]</u>		Date <u>5/17/18</u> Time <u>1800</u>		Received by _____		Date _____ Time _____	
(Rush TAT is subject to laboratory approval and surcharge.)				Relinquished by _____		Date _____ Time _____		Received by _____		Date _____ Time _____	
Date results are needed: _____				Relinquished by _____		Date _____ Time _____		Received by _____		Date _____ Time _____	
E-mail address: <u>JimPeace@golden.com, rhemett@golden.com, golden.com</u>				Relinquished by _____		Date _____ Time _____		Received by _____		Date _____ Time _____	
Data Package Options (circle if required) Type I (EPA Level 3 Equivalent/non-CLP) Type III (Reduced non-CLP) NYSDEC Category A or B				Type VI (Raw Data Only) NJ DKQP MA MCP		TX TRRP-13 CT RCP		Relinquished by Commercial Carrier: UPS _____ FedEx <u>X</u> Other _____		Temperature upon receipt <u>20.0</u> °C	

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The white copy should accompany samples to Eurofins Lancaster Laboratories Environmental. The yellow copy should be retained by the client.

Environmental Analysis Request/Chain of Custody



Lancaster Laboratories
Environmental

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Acct. # _____ Group # _____ Sample # _____

COC # 549872

Client Information				Matrix				Analysis Requested												For Lab Use Only			
Client: <u>Golder Associates</u>		Acct. #:		☐ Tissue ☐ Ground ☒ Surface		☐ Potable ☐ NPDES ☐ Water		☐ Sediment ☐ Other:		Preservation Codes PFAS (16 compounds) PFAS (32 compounds) HPTODA (16 compounds) 6 metals (Cu, Fe, Ag, Ni, Pb, Zn) 19 metals chlorid, nitrate, nitrite, fluoride Bicarbonate alkalinity Sulfite Ammonia Nitrogen TSS												FSC: _____ SCR#: _____	
Project Name/ID: <u>SEPA/166-P633</u>		PWSID #:								Remarks:													
Project Manager: <u>Jim Pease</u>		P.O. #:																					
Sampler: <u>Scott Delw</u>		Quote #:																					
State where samples were collected: <u>NH</u>		For Compliance: Yes ☐ No ☐																					
Sample Identification		Collected		Grab	Composite	Soil	Water	Other	Total # of Containers														
		Date	Time																				
SW-MERP-301W-NS		5/17/18	850	X			X		6	X			X	X	X	X							
DUP-2			850	X			X		6	X			X	X	X	X							
SW-MERP-302W-NS			925	X			X		6	X			X	X	X	X							
SW-MERP-302W-TC			945	X			X		6	X			X	X	X	X							
SW-MERP-303W-NS			1030	X			X		6	X			X	X	X	X							
EB-2			1000	X			X		10	X			X	X	X	X							
FB-2			1010	X			X		2	X			X	X	X	X							
SW-MERP-401W-NS			1105	X			X		6	X			X	X	X	X							
SW-MERP-402W-NS			1315	X			X		6	X			X	X	X	X							
SW-MERP-402W-TC			1325	X			X		6	X			X	X	X	X							
Turnaround Time (TAT) Requested (please circle)				Relinquished by				Date		Time		Received by		Date		Time							
Standard				Rush				5/17/18		1800													
(Rush TAT is subject to laboratory approval and surcharge.)				Relinquished by				Date		Time		Received by		Date		Time							
Date results are needed:				Relinquished by				Date		Time		Received by		Date		Time							
E-mail address: <u>Trace@golder.com, shenett@golder.com, golder.com</u>				Relinquished by				Date		Time		Received by		Date		Time							
Data Package Options (circle if required)				Relinquished by				Date		Time		Received by		Date		Time							
Type I (EPA Level 3 Equivalent/non-CLP)				Type VI (Raw Data Only)				Date		Time		Received by		Date		Time							
Type III (Reduced non-CLP)				NJ DKQP TX TRRP-13				Date		Time		Received by		Date		Time							
NYSDEC Category A or B				MA MCP CT RCP				Date		Time		Received by		Date		Time							
EDD Required? Yes No				If yes, format:				Date		Time		Received by		Date		Time							
Site-Specific QC (MS/MSD/Dup)? Yes No				(If yes, indicate QC sample and submit triplicate sample volume.)				Date		Time		Received by		Date		Time							
Relinquished by Commercial Carrier:				UPS FedEx Other				Date		Time		Received by		Date		Time							
Temperature upon receipt								Date		Time		Received by		Date		Time							

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7044 0216

Environmental Analysis Request/Chain of Custody



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Acct. # 10253 Group # 1945663 Sample # 9619228-36

COC # **549881**

Client Information				Matrix				Analysis Requested												For Lab Use Only		
Client: <u>Golder Associates</u>		Acct. #:		☐ Tissue ☐ Ground ☐ Surface		Preservation Codes PEAS (16 compounds) PEAS (32 compounds) HFOODA "Gen X" ADONA Co metals (Co, Fe, Mn, Mo, Ni, Pb) 17 metals* Chloride, nitrate, nitrite, sulfide Bicarbonate alkalinity Sulfate Ammonia Nitrogen TSS												FSC: _____ SCR#: <u>224839</u>				
Project Name/ #: <u>SGPP/166-9623</u>		PWSID #:				☐ Sediment ☐ Potable ☐ NPDES ☐ Water ☐ Other:														Preservation Codes H=HCl T=Thiosulfate N=HNO ₃ B=NaOH S=H ₂ SO ₄ O=Other		
Project Manager: <u>Jim Peace</u>		P.O. #:																Remarks Al, Sb, As, Ba, Bz, Cd, Cr, Co, Cu, Pb, Hg, Ni, Se, Ag, Ti, V, Zn				
Sampler: <u>Scott Drew</u>		Quote #:																				
State where samples were collected: <u>NH</u>		For Compliance: Yes ☐ No ☐																				
Sample Identification		Collected		Grab	Composite	Soil	Water	Other:	Total # of Containers													
		Date	Time																			
SW-MERR-403W-NS		5/17/18	1300	X			X		8	X			X		X	X	X	X	X	There are 6		
SW-DB-101			1015	X			X		8	X			X		X	X	X	X	X	coolers total		
SW-DB-102			1115	X			X		8	X			X		X	X	X	X	X			
SW-DB-103			1425	X			X		8	X			X		X	X	X	X	X			
SW-DB-104			1600	X			X		8	X			X		X	X	X	X	X			
SW-DB-105			1450	X			X		8	X			X		X	X	X	X	X			
SW-DB-106			1515	X			X		8	X			X		X	X	X	X	X			
TB-2			1715	X			X		2	X												

Turnaround Time (TAT) Requested (please circle) Standard <u>Standard</u> Rush (Rush TAT is subject to laboratory approval and surcharge.)				Relinquished by <u>[Signature]</u> Date <u>5-8-18</u> Time <u>1220</u>		Received by _____ Date _____ Time _____	
Date results are needed: _____ E-mail address: <u>jpeace@golder.com</u> <u>thennett@golder.com</u> <u>scott.drew@golder.com</u>				Relinquished by <u>[Signature]</u> Date <u>5/17/18</u> Time <u>1800</u>		Received by _____ Date _____ Time _____	
				Relinquished by _____ Date _____ Time _____		Received by _____ Date _____ Time _____	
				Relinquished by _____ Date _____ Time _____		Received by _____ Date _____ Time _____	
				Relinquished by _____ Date _____ Time _____		Received by <u>[Signature]</u> Date <u>5/21/18</u> Time <u>0855</u>	
Data Package Options (circle if required) Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only) Type III (Reduced non-CLP) NJ DKQP TX TRRP-13 NYSDEC Category A or B MA MCP CT RCP				EDD Required? <u>Yes</u> No If yes, format: _____		Relinquished by Commercial Carrier: UPS _____ FedEx <u>X</u> Other _____	
				Site-Specific QC (MS/MSD/Dup)? <u>Yes</u> No (If yes, indicate QC sample and submit triplicate sample volume.)		Temperature upon receipt <u>20.0</u> °C	

Nancy Bornholm

Subject: FW: SGPP - Q2 2018 dry-weather flow samples arriving today (5/18)
Attachments: Figure 8A from 2018-04-20 SGPP StW Inv Rpt Addendum Signed.pdf

Importance: High

From: Bennett, Ross [mailto:ross_bennett@golder.com]
Sent: Monday, May 21, 2018 10:43 AM
To: Nancy Bornholm; Drew, Scott T
Subject: FW: SGPP - Q2 2018 dry-weather flow samples arriving today (5/18)
Importance: High

EXTERNAL EMAIL*

Hi Nancy-

For the samples that arrived on Friday, discard the highlighted samples (incomplete bottle sets), but run analysis on the un-highlighted samples (complete bottle sets).

From: Nancy Bornholm [<mailto:NancyBornholm@eurofinsUS.com>]
Sent: Friday, May 18, 2018 1:22 PM
To: Drew, Scott T <Scott_Drew@golder.com>; Bennett, Ross <ross_bennett@golder.com>
Subject: RE: SGPP - Q2 2018 dry-weather flow samples arriving today (5/18)

If it helps, any we received the following no. of bottles per location:

SW-MERR-301W-NS – 6 - DISCARD
 DUP-2 – 6
 SW-MERR-302W-NS – 6 - DISCARD
 SW-MERR-302W-IC – 6 - DISCARD
 SW-MERR-303W-NS – 6 - DISCARD
 EB-2 – 10
 FB-2 – 0 - DISCARD
 SW-MERR-401W-NS – 6 - DISCARD
 SW-MERR-402W-NS – 8
 SW-MERR-402W-IC – 8
 SW-MERR-403W-NS – 8
 SW-DB101 – 8
 SW-DB-102 – 6 - DISCARD
 SW-DB-103 – 8
 SW-DB-104 – 8
 SW-DB-105 – 8
 SW-DB-106 – 8
 TB-2 – 0 - DISCARD

Nancy
 Direct dial: 717-556-7250
 Main number: 717-656-2300 X 1310



Client: Golder

Delivery and Receipt Information

Delivery Method:	<u>Fed Ex</u>	Arrival Timestamp:	<u>05/18/2018 9:50</u>
Number of Packages:	<u>5</u>	Number of Projects:	<u>1</u>

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	N/A
Custody Seal Present:	Yes	Sample Date/Times match COC:	N/A
Custody Seal Intact:	Yes	VOA Vial Headspace $\geq$ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	0
Paperwork Enclosed:	No	Air Quality Samples Present:	No
Samples Intact:	Yes		
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	N/A		

Unpacked by Nicole Reiff (25684) at 13:31 on 05/18/2018

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	1.0	DT	Wet	Y	Bagged	N
2	DT146	1.3	DT	Wet	Y	Bagged	N
3	DT146	1.4	DT	Wet	Y	Bagged	N
4	DT146	1.6	DT	Wet	Y	Bagged	N
5	DT146	2.6	DT	Wet	Y	Bagged	N

Sample Administration
Receipt Documentation Log

Doc Log ID: 216782



Group Number(s): 1945663

Client: Golder

Paperwork Not Enclosed Details

<u>Sample ID on Label</u>	<u>No. of Containers</u>	<u>Date on Label</u>	<u>Comments</u>
SW-MERR-301W-NS	6	5/17/2018 08:50	
Dup-2	6	5/17/2018 08:50	
SW-MERR-302W-NS	6	5/17/2018 09:25	
SW-MERR-302W-IC	6	5/17/2018 09:45	
EB-2	10	5/17/2018 10:00	
SW-DB-101	8	5/17/2018 10:15	
SW-MERR-303W-NS	6	5/17/2018 10:30	
SW-MERR-401W-NS	6	5/17/2018 11:05	
SW-DB-102	6	5/17/2018 11:15	
SW-MERR-403W-NS	8	5/17/2018 13:00	
SW-MERR-402W-NS	8	5/17/2018 13:15	
SW-MERR-402W-IC	8	5/17/2018 13:25	
SW-DB-103	8	5/17/2018 14:25	
SW-DB-105	8	5/17/2018 14:50	
SW-DB-106	8	5/17/2018 15:15	
SW-DB-104	8	5/17/2018 16:00	

Explanation of Symbols and Abbreviations

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

BMQL	Below Minimum Quantitation Level	mg	milligram(s)
C	degrees Celsius	mL	milliliter(s)
cfu	colony forming units	MPN	Most Probable Number
CP Units	cobalt-chloroplatinate units	N.D.	non-detect
F	degrees Fahrenheit	ng	nanogram(s)
g	gram(s)	NTU	nephelometric turbidity units
IU	International Units	pg/L	picogram/liter
kg	kilogram(s)	RL	Reporting Limit
L	liter(s)	TNTC	Too Numerous To Count
lb.	pound(s)	µg	microgram(s)
m3	cubic meter(s)	µL	microliter(s)
meq	milliequivalents	umhos/cm	micromhos/cm
<	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.

This report shall not be reproduced except in full, without the written approval of the laboratory.

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.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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.
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.



ANALYSIS REPORT

Prepared by:

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

Prepared for:

Golder Associates
670 North Commercial Street
Suite 103
Manchester NH 03101

Report Date: June 11, 2018 16:21

Project: SGPP-Merrimack NH

Account #: 10253
Group Number: 1945489
SDG: GOA17
PO Number: PROJECT: 166-8623
State of Sample Origin: NH

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at <http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>. To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To Golder Associates
Electronic Copy To Golder Associates
Electronic Copy To Environmental Standards
Electronic Copy To Environmental Standards
Electronic Copy To Golder Associates

Attn: Scott Drew
Attn: Ross Bennett
Attn: SaintGobain
Attn: Meg Michell
Attn: Jim Peace

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250



SAMPLE INFORMATION

<u>Client Sample Description</u>	<u>Sample Collection</u> <u>Date/Time</u>	<u>ELLE#</u>
SW-DB-107 Grab Surface Water	05/18/2018 08:30	9618578
SW-DB-107 MS Grab Surface Water	05/18/2018 08:30	9618579
SW-DB-107 MSD Grab Surface Water	05/18/2018 08:30	9618580
SW-DB-108 Grab Surface Water	05/18/2018 08:55	9618581
SW-DB-109 Grab Surface Water	05/18/2018 09:10	9618582

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

Project Name: SGPP-Merrimack NH
ELLE Group #: 1945489

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 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:**EPA 537 Version 1.1 Modified, LC/MS/MS Miscellaneous****Sample #s: 9618578**

The recovery for the labeled compound used as extraction standard 13C3-PFBS is outside the QC acceptance limits as noted on the QC Summary. The recovery for the labeled compound used as extraction standard 13C3-PFBS is within the QC acceptance limits in the associated matrix spike and matrix spike duplicate, but follows a similar low-recovery pattern, indicating a matrix effect.

Batch #: 18144009 (Sample number(s): 9618578-9618582 UNSPK: 9618578)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Perfluorodecanoic acid, Perfluorooctanoic acid, Perfluorononanoic acid, Perfluorotetradecanoic acid, Perfluoroheptanoic acid, Perfluoro-Octanesulfonic Acid, Perfluorobutanoic acid, Perfluoropentanoic acid

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Perfluorooctanoic acid

The relative percent difference(s) for the following analyte(s) in the MS/MSD were outside acceptance windows: Perfluorotetradecanoic acid

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9618578

SW-846 6010C, Metals**Batch #: 181401063501 (Sample number(s): 9618578, 9618581-9618582 UNSPK: P612461 BKG: P612461)**

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Calcium, Magnesium, Potassium, Sodium

EPA 300.0, Wet Chemistry**Batch #: 18139265112A (Sample number(s): 9618578, 9618581-9618582 UNSPK: 9618578 BKG: 9618578)**

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Chloride

SM 2320 B-2011, Wet Chemistry

Batch #: 18141005202A (Sample number(s): 9618578, 9618581-9618582 UNSPK: P618662 BKG: P618662-P618663)

The recovery(ies) for the following analyte(s) in the MS were below the acceptance window: Total Alkalinity to pH 4.5

SM 2540 D-2011, Wet Chemistry

Sample #s: 9618581

Reporting limits were raised due to interference from the sample matrix.

Sample Description: SW-DB-107 Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9618578
ELLE Group #: 1945489
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/19/2018 10:00
Collection Date/Time: 05/18/2018 08:30
SDG#: GOA17-01BKG

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous		EPA 537 Version 1.1 Modified	ng/l	ng/l	ng/l	
14473	NEtFOSAA	2991-50-6	0.89 U	0.89	2.7	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.89 U	0.89	2.7	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonic Acid	375-73-5	6.4	0.27	0.89	1
14473	Perfluorobutanoic acid	375-22-4	16	1.8	5.3	1
14473	Perfluorodecanoic acid	335-76-2	0.92 J	0.89	1.8	1
14473	Perfluorododecanoic acid	307-55-1	0.27 U	0.27	0.89	1
14473	Perfluoroheptanoic acid	375-85-9	51	0.27	0.89	1
14473	Perfluorohexanesulfonic Acid	355-46-4	6.5	0.35	1.8	1
14473	Perfluorohexanoic acid	307-24-4	82	0.35	1.8	1
14473	Perfluorononanoic acid	375-95-1	2.3	0.35	1.8	1
14473	Perfluoro-Octanesulfonic Acid	1763-23-1	13	0.35	1.8	1
14473	Perfluorooctanoic acid	335-67-1	330	0.27	0.89	1
14473	Perfluoropentanoic acid	2706-90-3	46	1.8	5.3	1
14473	Perfluorotetradecanoic acid	376-06-7	0.27 U	0.27	0.89	1
14473	Perfluorotridecanoic acid	72629-94-8	0.27 U	0.27	0.89	1
14473	Perfluoroundecanoic acid	2058-94-8	0.35 U	0.35	1.8	1

The recovery for the labeled compound used as extraction standard 13C3-PFBS is outside the QC acceptance limits as noted on the QC Summary. The recovery for the labeled compound used as extraction standard 13C3-PFBS is within the QC acceptance limits in the associated matrix spike and matrix spike duplicate, but follows a similar low-recovery pattern, indicating a matrix effect.

Metals		SW-846 6010C	mg/l	mg/l	mg/l	
01750	Calcium	7440-70-2	12.4	0.0600	0.400	1
01754	Iron	7439-89-6	0.259 J	0.0805	0.400	1
01757	Magnesium	7439-95-4	2.26	0.0374	0.200	1
07058	Manganese	7439-96-5	0.117	0.0016	0.0100	1
01762	Potassium	7440-09-7	2.28	0.179	1.00	1
01767	Sodium	7440-23-5	71.4	0.321	2.00	1
Wet Chemistry		EPA 300.0	mg/l	mg/l	mg/l	
00224	Chloride	16887-00-6	116	10.0	20.0	50
00368	Nitrate Nitrogen	14797-55-8	0.97	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	Sulfate	14808-79-8	12.0	1.5	5.0	5
		EPA 350.1	mg/l	mg/l	mg/l	
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1

*=This limit was used in the evaluation of the final result

Sample Description: SW-DB-107 Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9618578
ELLE Group #: 1945489
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submission Date/Time: 05/19/2018 10:00
Collection Date/Time: 05/18/2018 08:30
SDG#: GOA17-01BKG

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Wet Chemistry						
		SM 2320 B-2011	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	
12150	Total Alkalinity to pH 4.5	n.a.	10.4	1.7	5.0	1
12149	Bicarbonate Alkalinity	n.a.	10.4	1.7	5.0	1
SM 2540 D-2011						
		mg/l	mg/l	mg/l	mg/l	
13858	Total Suspended Solids	n.a.	2.54 J	1.00	3.00	1
SM 4500-SO3 B-2011						
		mg/l	mg/l	mg/l	mg/l	
00229	Sulfite	14265-45-3	1.5 U	1.5	5.0	1
The 40 CFR Part 136 requires that this analysis be performed immediately (within 15 minutes) upon sample collection. Because this was not possible, the result may not be used for reporting purposes.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	16 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18144009	06/07/2018 13:32	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18144009	05/24/2018 09:10	Courtney J Fatta	1
01750	Calcium	SW-846 6010C	1	181401063501	05/22/2018 19:08	Elaine F Stoltzfus	1
01754	Iron	SW-846 6010C	1	181401063501	05/22/2018 19:08	Elaine F Stoltzfus	1
01757	Magnesium	SW-846 6010C	1	181401063501	05/22/2018 19:08	Elaine F Stoltzfus	1
07058	Manganese	SW-846 6010C	1	181401063501	05/22/2018 19:08	Elaine F Stoltzfus	1
01762	Potassium	SW-846 6010C	1	181401063501	05/22/2018 19:08	Elaine F Stoltzfus	1
01767	Sodium	SW-846 6010C	1	181401063501	05/22/2018 19:08	Elaine F Stoltzfus	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	181401063501	05/21/2018 05:22	James L Mertz	1
00224	Chloride	EPA 300.0	1	18139265112A	05/19/2018 15:47	Kianat Zamir	50
00368	Nitrate Nitrogen	EPA 300.0	1	18139265112A	05/19/2018 15:30	Kianat Zamir	5
01506	Nitrite Nitrogen	EPA 300.0	1	18139265112A	05/19/2018 15:30	Kianat Zamir	5
00228	Sulfate	EPA 300.0	1	18139265112A	05/19/2018 15:30	Kianat Zamir	5
12892	Ammonia Nitrogen	EPA 350.1	1	18143107101B	05/23/2018 18:29	Samuel J Weaver	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-2011	1	18141005202A	05/22/2018 02:16	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-2011	1	18141005202A	05/22/2018 02:16	Jeremy L Bolf	1
13858	Total Suspended Solids	SM 2540 D-2011	1	18142385801A	05/22/2018 09:03	Amy L Hankins	1
00229	Sulfite	SM 4500-SO3 B-2011	1	18142022901A	05/22/2018 10:00	Michelle L Lalli	1

*=This limit was used in the evaluation of the final result

Sample Description: SW-DB-107 MS Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9618579
ELLE Group #: 1945489
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submission Date/Time: 05/19/2018 10:00
Collection Date/Time: 05/18/2018 08:30
SDG#: GOA17-01MS

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous		EPA 537 Version 1.1 Modified	ng/l	ng/l	ng/l	
14473	NEtFOSAA	2991-50-6	5.6	0.90	2.7	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	6.1	0.90	2.7	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonic Acid	375-73-5	11	0.27	0.90	1
14473	Perfluorobutanoic acid	375-22-4	23	1.8	5.4	1
14473	Perfluorodecanoic acid	335-76-2	6.5	0.90	1.8	1
14473	Perfluorododecanoic acid	307-55-1	6.0	0.27	0.90	1
14473	Perfluoroheptanoic acid	375-85-9	58	0.27	0.90	1
14473	Perfluorohexanesulfonic Acid	355-46-4	12	0.36	1.8	1
14473	Perfluorohexanoic acid	307-24-4	85	0.36	1.8	1
14473	Perfluorononanoic acid	375-95-1	9.2	0.36	1.8	1
14473	Perfluoro-Octanesulfonic Acid	1763-23-1	21	0.36	1.8	1
14473	Perfluorooctanoic acid	335-67-1	370 E	0.27	0.90	1
14473	Perfluoropentanoic acid	2706-90-3	53	1.8	5.4	1
14473	Perfluorotetradecanoic acid	376-06-7	17	0.27	0.90	1
14473	Perfluorotridecanoic acid	72629-94-8	5.7	0.27	0.90	1
14473	Perfluoroundecanoic acid	2058-94-8	5.7	0.36	1.8	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	16 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18144009	06/07/2018 13:47	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18144009	05/24/2018 09:10	Courtney J Fatta	1

*=This limit was used in the evaluation of the final result

Sample Description: SW-DB-107 MSD Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9618580
ELLE Group #: 1945489
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submission Date/Time: 05/19/2018 10:00
Collection Date/Time: 05/18/2018 08:30
SDG#: GOA17-01MSD

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous		EPA 537 Version 1.1 Modified	ng/l	ng/l	ng/l	
14473	NEtFOSAA	2991-50-6	5.7	0.90	2.7	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	5.5	0.90	2.7	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonic Acid	375-73-5	11	0.27	0.90	1
14473	Perfluorobutanoic acid	375-22-4	22	1.8	5.4	1
14473	Perfluorodecanoic acid	335-76-2	8.0	0.90	1.8	1
14473	Perfluorododecanoic acid	307-55-1	5.9	0.27	0.90	1
14473	Perfluoroheptanoic acid	375-85-9	55	0.27	0.90	1
14473	Perfluorohexanesulfonic Acid	355-46-4	11	0.36	1.8	1
14473	Perfluorohexanoic acid	307-24-4	86	0.36	1.8	1
14473	Perfluorononanoic acid	375-95-1	8.1	0.36	1.8	1
14473	Perfluoro-Octanesulfonic Acid	1763-23-1	18	0.36	1.8	1
14473	Perfluorooctanoic acid	335-67-1	330	0.27	0.90	1
14473	Perfluoropentanoic acid	2706-90-3	51	1.8	5.4	1
14473	Perfluorotetradecanoic acid	376-06-7	5.9	0.27	0.90	1
14473	Perfluorotridecanoic acid	72629-94-8	5.7	0.27	0.90	1
14473	Perfluoroundecanoic acid	2058-94-8	5.3	0.36	1.8	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	16 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18144009	06/07/2018 14:03	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18144009	05/24/2018 09:10	Courtney J Fatta	1

*=This limit was used in the evaluation of the final result

Sample Description: SW-DB-108 Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9618581
ELLE Group #: 1945489
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/19/2018 10:00
Collection Date/Time: 05/18/2018 08:55
SDG#: GOA17-02

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous EPA 537 Version 1.1 Modified						
14473	NEtFOSAA	2991-50-6	0.92 U	0.92	2.8	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.92 U	0.92	2.8	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonic Acid	375-73-5	5.5	0.28	0.92	1
14473	Perfluorobutanoic acid	375-22-4	9.2	1.8	5.5	1
14473	Perfluorodecanoic acid	335-76-2	0.92 U	0.92	1.8	1
14473	Perfluorododecanoic acid	307-55-1	0.28 U	0.28	0.92	1
14473	Perfluoroheptanoic acid	375-85-9	38	0.28	0.92	1
14473	Perfluorohexanesulfonic Acid	355-46-4	6.1	0.37	1.8	1
14473	Perfluorohexanoic acid	307-24-4	45	0.37	1.8	1
14473	Perfluorononanoic acid	375-95-1	1.5 J	0.37	1.8	1
14473	Perfluoro-Octanesulfonic Acid	1763-23-1	6.9	0.37	1.8	1
14473	Perfluorooctanoic acid	335-67-1	240	0.28	0.92	1
14473	Perfluoropentanoic acid	2706-90-3	23	1.8	5.5	1
14473	Perfluorotetradecanoic acid	376-06-7	0.28 U	0.28	0.92	1
14473	Perfluorotridecanoic acid	72629-94-8	0.28 U	0.28	0.92	1
14473	Perfluoroundecanoic acid	2058-94-8	0.37 U	0.37	1.8	1
Metals SW-846 6010C						
01750	Calcium	7440-70-2	11.7	0.0600	0.400	1
01754	Iron	7439-89-6	0.701	0.0805	0.400	1
01757	Magnesium	7439-95-4	2.12	0.0374	0.200	1
07058	Manganese	7439-96-5	0.144	0.0016	0.0100	1
01762	Potassium	7440-09-7	2.13	0.179	1.00	1
01767	Sodium	7440-23-5	66.1	0.321	2.00	1
Wet Chemistry EPA 300.0						
00224	Chloride	16887-00-6	99.8	10.0	20.0	50
00368	Nitrate Nitrogen	14797-55-8	1.0	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	Sulfate	14808-79-8	11.4	1.5	5.0	5
EPA 350.1						
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
SM 2320 B-2011						
12150	Total Alkalinity to pH 4.5	n.a.	10.3	1.7	5.0	1
12149	Bicarbonate Alkalinity	n.a.	10.3	1.7	5.0	1
SM 2540 D-2011						

*=This limit was used in the evaluation of the final result

Sample Description: SW-DB-108 Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9618581
ELLE Group #: 1945489
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/19/2018 10:00
Collection Date/Time: 05/18/2018 08:55
SDG#: GOA17-02

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Wet Chemistry SM 2540 D-2011 mg/l						
13858	Total Suspended Solids	n.a.	4.00 J	3.00	9.00	1
Reporting limits were raised due to interference from the sample matrix.						
Wet Chemistry SM 4500-SO3 B-2011 mg/l						
00229	Sulfite	14265-45-3	1.5 U	1.5	5.0	1
The 40 CFR Part 136 requires that this analysis be performed immediately (within 15 minutes) upon sample collection. Because this was not possible, the result may not be used for reporting purposes.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	16 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18144009	06/07/2018 14:18	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18144009	05/24/2018 09:10	Courtney J Fatta	1
01750	Calcium	SW-846 6010C	1	181401063501	05/22/2018 19:11	Elaine F Stoltzfus	1
01754	Iron	SW-846 6010C	1	181401063501	05/22/2018 19:11	Elaine F Stoltzfus	1
01757	Magnesium	SW-846 6010C	1	181401063501	05/22/2018 19:11	Elaine F Stoltzfus	1
07058	Manganese	SW-846 6010C	1	181401063501	05/22/2018 19:11	Elaine F Stoltzfus	1
01762	Potassium	SW-846 6010C	1	181401063501	05/22/2018 19:11	Elaine F Stoltzfus	1
01767	Sodium	SW-846 6010C	1	181401063501	05/22/2018 19:11	Elaine F Stoltzfus	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	181401063501	05/21/2018 05:22	James L Mertz	1
00224	Chloride	EPA 300.0	1	18139265112A	05/19/2018 19:51	Kianat Zamir	50
00368	Nitrate Nitrogen	EPA 300.0	1	18139265112A	05/19/2018 19:33	Kianat Zamir	5
01506	Nitrite Nitrogen	EPA 300.0	1	18139265112A	05/19/2018 19:33	Kianat Zamir	5
00228	Sulfate	EPA 300.0	1	18139265112A	05/19/2018 19:33	Kianat Zamir	5
12892	Ammonia Nitrogen	EPA 350.1	1	18143107101B	05/23/2018 18:45	Samuel J Weaver	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-2011	1	18141005202A	05/22/2018 02:10	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-2011	1	18141005202A	05/22/2018 02:10	Jeremy L Bolf	1
13858	Total Suspended Solids	SM 2540 D-2011	1	18142385801A	05/22/2018 09:03	Amy L Hankins	1
00229	Sulfite	SM 4500-SO3 B-2011	1	18142022901A	05/22/2018 10:00	Michelle L Lalli	1

*=This limit was used in the evaluation of the final result

Sample Description: SW-DB-109 Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9618582
ELLE Group #: 1945489
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/19/2018 10:00
Collection Date/Time: 05/18/2018 09:10
SDG#: GOA17-03

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous EPA 537 Version 1.1 Modified						
14473	NEtFOSAA	2991-50-6	0.91 U	0.91	2.7	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.91 U	0.91	2.7	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonic Acid	375-73-5	5.6	0.27	0.91	1
14473	Perfluorobutanoic acid	375-22-4	8.0	1.8	5.5	1
14473	Perfluorodecanoic acid	335-76-2	0.91 U	0.91	1.8	1
14473	Perfluorododecanoic acid	307-55-1	0.27 U	0.27	0.91	1
14473	Perfluoroheptanoic acid	375-85-9	33	0.27	0.91	1
14473	Perfluorohexanesulfonic Acid	355-46-4	5.6	0.36	1.8	1
14473	Perfluorohexanoic acid	307-24-4	37	0.36	1.8	1
14473	Perfluorononanoic acid	375-95-1	0.91 J	0.36	1.8	1
14473	Perfluoro-Octanesulfonic Acid	1763-23-1	6.0	0.36	1.8	1
14473	Perfluorooctanoic acid	335-67-1	210	0.27	0.91	1
14473	Perfluoropentanoic acid	2706-90-3	18	1.8	5.5	1
14473	Perfluorotetradecanoic acid	376-06-7	0.27 U	0.27	0.91	1
14473	Perfluorotridecanoic acid	72629-94-8	0.27 U	0.27	0.91	1
14473	Perfluoroundecanoic acid	2058-94-8	0.36 U	0.36	1.8	1
Metals SW-846 6010C						
01750	Calcium	7440-70-2	10.5	0.0600	0.400	1
01754	Iron	7439-89-6	1.72	0.0805	0.400	1
01757	Magnesium	7439-95-4	2.15	0.0374	0.200	1
07058	Manganese	7439-96-5	0.0723	0.0016	0.0100	1
01762	Potassium	7440-09-7	2.07	0.179	1.00	1
01767	Sodium	7440-23-5	56.8	0.321	2.00	1
Wet Chemistry EPA 300.0						
00224	Chloride	16887-00-6	86.1	4.0	8.0	20
00368	Nitrate Nitrogen	14797-55-8	1.2	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	Sulfate	14808-79-8	11.3	1.5	5.0	5
EPA 350.1						
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
SM 2320 B-2011						
12150	Total Alkalinity to pH 4.5	n.a.	14.4	1.7	5.0	1
12149	Bicarbonate Alkalinity	n.a.	14.4	1.7	5.0	1
SM 2540 D-2011						

*=This limit was used in the evaluation of the final result

Sample Description: SW-DB-109 Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9618582
ELLE Group #: 1945489
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/19/2018 10:00
Collection Date/Time: 05/18/2018 09:10
SDG#: GOA17-03

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Wet Chemistry						
13858	Total Suspended Solids	SM 2540 D-2011 n.a.	mg/l 10.6	mg/l 1.00	mg/l 3.00	1
Wet Chemistry						
00229	Sulfite	SM 4500-SO3 B-2011 14265-45-3	mg/l 1.5 U	mg/l 1.5	mg/l 5.0	1
The 40 CFR Part 136 requires that this analysis be performed immediately (within 15 minutes) upon sample collection. Because this was not possible, the result may not be used for reporting purposes.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	16 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18144009	06/07/2018 14:34	Mark Makowiecki	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18144009	05/24/2018 09:10	Courtney J Fatta	1
01750	Calcium	SW-846 6010C	1	181401063501	05/22/2018 19:20	Elaine F Stoltzfus	1
01754	Iron	SW-846 6010C	1	181401063501	05/22/2018 19:20	Elaine F Stoltzfus	1
01757	Magnesium	SW-846 6010C	1	181401063501	05/22/2018 19:20	Elaine F Stoltzfus	1
07058	Manganese	SW-846 6010C	1	181401063501	05/22/2018 19:20	Elaine F Stoltzfus	1
01762	Potassium	SW-846 6010C	1	181401063501	05/22/2018 19:20	Elaine F Stoltzfus	1
01767	Sodium	SW-846 6010C	1	181401063501	05/22/2018 19:20	Elaine F Stoltzfus	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	181401063501	05/21/2018 05:22	James L Mertz	1
00224	Chloride	EPA 300.0	1	18139265112A	05/19/2018 20:26	Kianat Zamir	20
00368	Nitrate Nitrogen	EPA 300.0	1	18139265112A	05/19/2018 20:08	Kianat Zamir	5
01506	Nitrite Nitrogen	EPA 300.0	1	18139265112A	05/19/2018 20:08	Kianat Zamir	5
00228	Sulfate	EPA 300.0	1	18139265112A	05/19/2018 20:08	Kianat Zamir	5
12892	Ammonia Nitrogen	EPA 350.1	1	18143107101B	05/23/2018 18:46	Samuel J Weaver	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-2011	1	18141005202A	05/22/2018 02:23	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-2011	1	18141005202A	05/22/2018 02:23	Jeremy L Bolf	1
13858	Total Suspended Solids	SM 2540 D-2011	1	18142385801A	05/22/2018 09:03	Amy L Hankins	1
00229	Sulfite	SM 4500-SO3 B-2011	1	18142022901A	05/22/2018 10:00	Michelle L Lalli	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: Golder Associates
Reported: 06/11/2018 16:21

Group Number: 1945489

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 ng/l	MDL** ng/l	LOQ ng/l
Batch number: 18144009	Sample number(s): 9618578-9618582		
NEtFOSAA	1.0 U	1.0	3.0
NMeFOSAA	1.0 U	1.0	3.0
Perfluorobutanesulfonic Acid	0.30 U	0.30	1.0
Perfluorobutanoic acid	2.0 U	2.0	6.0
Perfluorodecanoic acid	1.0 U	1.0	2.0
Perfluorododecanoic acid	0.30 U	0.30	1.0
Perfluoroheptanoic acid	0.30 U	0.30	1.0
Perfluorohexanesulfonic Acid	0.40 U	0.40	2.0
Perfluorohexanoic acid	0.40 U	0.40	2.0
Perfluorononanoic acid	0.40 U	0.40	2.0
Perfluoro-Octanesulfonic Acid	0.40 U	0.40	2.0
Perfluorooctanoic acid	0.30 U	0.30	1.0
Perfluoropentanoic acid	2.0 U	2.0	6.0
Perfluorotetradecanoic acid	0.30 U	0.30	1.0
Perfluorotridecanoic acid	0.30 U	0.30	1.0
Perfluoroundecanoic acid	0.40 U	0.40	2.0
	mg/l	mg/l	mg/l
Batch number: 181401063501	Sample number(s): 9618578,9618581-9618582		
Calcium	0.0600 U	0.0600	0.400
Iron	0.0805 U	0.0805	0.400
Magnesium	0.0374 U	0.0374	0.200
Manganese	0.0016 U	0.0016	0.0100
Potassium	0.179 U	0.179	1.00
Sodium	0.321 U	0.321	2.00
Batch number: 18139265112A	Sample number(s): 9618578,9618581-9618582		
Chloride	0.20 U	0.20	0.40
Nitrate Nitrogen	0.050 U	0.050	0.10
Nitrite Nitrogen	0.050 U	0.050	0.10
Sulfate	0.30 U	0.30	1.0
Batch number: 18143107101B	Sample number(s): 9618578,9618581-9618582		
Ammonia Nitrogen	0.050 U	0.050	0.10
Batch number: 18142022901A	Sample number(s): 9618578,9618581-9618582		
Sulfite	1.5 U	1.5	5.0
Batch number: 18142385801A	Sample number(s): 9618578,9618581-9618582		
Total Suspended Solids	1.00 U	1.00	3.00

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(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: Golder Associates
Reported: 06/11/2018 16:21

Group Number: 1945489

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l as CaCO ₃	mg/l as CaCO ₃	mg/l as CaCO ₃
Batch number: 18141005202A	Sample number(s): 9618578,9618581-9618582		
Total Alkalinity to pH 4.5	1.7 U	1.7	5.0

LCS/LCSD

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
Batch number: 18144009	Sample number(s): 9618578-9618582								
NEtFOSAA	5.44	5.34			98		55-169		
NMeFOSAA	5.44	5.13			94		62-167		
Perfluorobutanesulfonic Acid	4.81	4.97			103		73-128		
Perfluorobutanoic acid	5.44	5.56			102		74-142		
Perfluorodecanoic acid	5.44	6.20			114		69-148		
Perfluorododecanoic acid	5.44	5.76			106		75-136		
Perfluoroheptanoic acid	5.44	5.99			110		76-140		
Perfluorohexanesulfonic Acid	5.14	4.84			94		71-131		
Perfluorohexanoic acid	5.44	6.00			110		75-135		
Perfluorononanoic acid	5.44	6.25			115		72-148		
Perfluoro-Octanesulfonic Acid	5.20	4.82			93		67-138		
Perfluorooctanoic acid	5.44	5.72			105		72-138		
Perfluoropentanoic acid	5.44	5.52			102		74-134		
Perfluorotetradecanoic acid	5.44	5.89			108		74-135		
Perfluorotridecanoic acid	5.44	5.71			105		61-145		
Perfluoroundecanoic acid	5.44	5.86			108		75-146		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 181401063501	Sample number(s): 9618578,9618581-9618582								
Calcium	4.00	4.18			105		88-112		
Iron	1.00	1.06			106		80-114		
Magnesium	2.00	2.11			105		88-114		
Manganese	0.500	0.524			105		90-112		
Potassium	10	10.62			106		88-112		
Sodium	10	10.78			108		87-112		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 18139265112A	Sample number(s): 9618578,9618581-9618582								
Chloride	3.00	3.00			100		90-110		
Nitrate Nitrogen	0.750	0.728			97		90-110		
Nitrite Nitrogen	0.750	0.744			99		90-110		
Sulfate	7.50	7.72			103		90-110		

*- Outside of specification

**-This limit was used in the evaluation of the final result for the blank

(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: Golder Associates
Reported: 06/11/2018 16:21

Group Number: 1945489

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/l	LCS Conc mg/l	LCSD Spike Added mg/l	LCSD Conc mg/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18143107101B Ammonia Nitrogen	Sample number(s): 9618578,9618581-9618582 1.50	1.47	1.50	1.50	98	100	90-110	2	15
	mg/l	mg/l	mg/l	mg/l					
Batch number: 18142022901A Sulfite	Sample number(s): 9618578,9618581-9618582 50	46			92		79-105		
Batch number: 18142385801A Total Suspended Solids	Sample number(s): 9618578,9618581-9618582 150	142.8			95		89-105		
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 18141005202A Total Alkalinity to pH 4.5	Sample number(s): 9618578,9618581-9618582 188	177.24			94		77-109		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ng/l	MS Spike Added ng/l	MS Conc ng/l	MSD Spike Added ng/l	MSD Conc ng/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 18144009	Sample number(s): 9618578-9618582 UNSPK: 9618578									
NEtFOSAA	0.89 U	4.88	5.59	4.90	5.65	115	115	70-130	1	30
NMeFOSAA	0.89 U	4.88	6.06	4.90	5.53	124	113	70-130	9	30
Perfluorobutanesulfonic Acid	6.38	4.31	11.06	4.34	10.56	109	96	70-130	5	30
Perfluorobutanoic acid	16.18	4.88	23.06	4.90	22.04	141*	120	70-130	5	30
Perfluorodecanoic acid	0.917	4.88	6.55	4.90	8.04	115	145*	70-130	21	30
Perfluorododecanoic acid	0.27 U	4.88	6.01	4.90	5.92	123	121	70-130	2	30
Perfluoroheptanoic acid	50.64	4.88	57.66	4.90	55.35	144 (2)	96 (2)	70-130	4	30
Perfluorohexanesulfonic Acid	6.48	4.61	11.94	4.64	11.42	118	107	70-130	4	30
Perfluorohexanoic acid	81.54	4.88	85.4	4.90	85.94	79 (2)	90 (2)	70-130	1	30
Perfluorononanoic acid	2.26	4.88	9.16	4.90	8.12	141*	119	70-130	12	30
Perfluoro-Octanesulfonic Acid	13.09	4.66	21.11	4.69	17.6	172*	96	70-130	18	30
Perfluorooctanoic acid	329.54	4.88	371.23	4.90	325.08	855 (2)	-90 (2)	70-130	13	30
Perfluoropentanoic acid	45.98	4.88	53.31	4.90	51.33	150 (2)	109 (2)	70-130	4	30
Perfluorotetradecanoic acid	0.27 U	4.88	17.2	4.90	5.91	353*	121	70-130	98*	30
Perfluorotridecanoic acid	0.27 U	4.88	5.72	4.90	5.71	117	117	70-130	0	30
Perfluoroundecanoic acid	0.35 U	4.88	5.74	4.90	5.32	118	109	70-130	8	30
	mg/l	mg/l	mg/l	mg/l	mg/l					

*- Outside of specification

**-This limit was used in the evaluation of the final result for the blank

(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: Golder Associates
Reported: 06/11/2018 16:21

Group Number: 1945489

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 181401063501	Sample number(s): 9618578,9618581-9618582 UNSPK: P612461									
Calcium	171.65	4.00	182.87	4.00	179.82	281 (2)	204 (2)	75-125	2	20
Iron	3.43	1.00	4.47	1.00	4.45	104	102	75-125	1	20
Magnesium	205.61	2.00	214.09	2.00	209.21	424 (2)	180 (2)	75-125	2	20
Manganese	1.51	0.500	2.04	0.500	2.03	106	103	75-125	1	20
Potassium	177.82	10	194.18	10	191.81	164 (2)	140 (2)	75-125	1	20
Sodium	574.53	10	604.24	10	582.77	297 (2)	82 (2)	75-125	4	20
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 18139265112A	Sample number(s): 9618578,9618581-9618582 UNSPK: 9618578									
Chloride	116.31	100	227.15			111*		90-110		
Nitrate Nitrogen	0.970	2.50	3.38			97		90-110		
Nitrite Nitrogen	0.25 U	2.50	2.31			92		90-110		
Sulfate	12.03	25	38.96			108		90-110		
Batch number: 18143107101B	Sample number(s): 9618578,9618581-9618582 UNSPK: 9618578									
Ammonia Nitrogen	0.050 U	1.00	1.08			108		90-110		
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 18142022901A	Sample number(s): 9618578,9618581-9618582 UNSPK: P618570									
Sulfite	1.5 U	50	47.5	50	48	95	96	79-105	1	5
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 18141005202A	Sample number(s): 9618578,9618581-9618582 UNSPK: P618662									
Total Alkalinity to pH 4.5	257.63	188	279.4			12*		77-109		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
Batch number: 181401063501	Sample number(s): 9618578,9618581-9618582 BKG: P612461			
Calcium	171.65	174.93	2	20
Iron	3.43	3.45	1	20
Magnesium	205.61	206.19	0	20
Manganese	1.51	1.54	2	20
Potassium	177.82	183.82	3	20
Sodium	574.53	606.05	5	20

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(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: Golder Associates
Reported: 06/11/2018 16:21

Group Number: 1945489

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
	mg/l	mg/l		
Batch number: 18139265112A	Sample number(s): 9618578,9618581-9618582 BKG: 9618578			
Chloride	116.31	116.75	0	15
Nitrate Nitrogen	0.970	0.950	2 (1)	15
Nitrite Nitrogen	0.25 U	0.25 U	0 (1)	15
Sulfate	12.03	11.89	1 (1)	15
Batch number: 18143107101B	Sample number(s): 9618578,9618581-9618582 BKG: 9618578			
Ammonia Nitrogen	0.050 U	0.050 U	0 (1)	20
	mg/l	mg/l		
Batch number: 18142022901A	Sample number(s): 9618578,9618581-9618582 BKG: P618570			
Sulfite	1.5 U	1.5 U	0 (1)	20
Batch number: 18142385801A	Sample number(s): 9618578,9618581-9618582 BKG: P618343			
Total Suspended Solids	71.33	70.67	1 (1)	5
	mg/l as CaCO ₃	mg/l as CaCO ₃		
Batch number: 18141005202A	Sample number(s): 9618578,9618581-9618582 BKG: P618662			
Total Alkalinity to pH 4.5	257.63	254.46	1	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 16 PFAS Compounds
Batch number: 18144009

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9618578	85	126	159*	79	111	110
9618579	74	113	140	70	96	100
9618580	78	117	144	79	104	109
9618581	76	112	137	69	88	94
9618582	79	118	131	73	88	99
Blank	83	84	80	89	82	86
LCS	90	90	91	85	86	87
MS	74	113	140	70	96	100
MSD	78	117	144	79	104	109
Limits:	33-123	39-135	26-148	31-128	34-126	35-126

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(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: Golder Associates
Reported: 06/11/2018 16:21

Group Number: 1945489

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 16 PFAS Compounds
Batch number: 18144009

	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	d3-NMeFOSAA	13C7-PFUnDA
9618578	77	85	93	85	77	81
9618579	69	75	74	70	62	70
9618580	79	81	78	78	76	82
9618581	70	77	77	71	60	68
9618582	71	65	71	72	64	66
Blank	83	86	93	82	93	97
LCS	88	96	93	84	107	99
MS	69	75	74	70	62	70
MSD	79	81	78	78	76	82
Limits:	43-112	43-115	32-134	40-115	17-120	30-128

	d5-NEtFOSAA	13C2-PFDODA	13C2-PFTeDA
9618578	72	70	59
9618579	60	59	53
9618580	67	70	65
9618581	54	59	48
9618582	58	65	52
Blank	92	88	85
LCS	93	91	91
MS	60	59	53
MSD	67	70	65
Limits:	21-135	28-127	26-119

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(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.

eurofins

Acct. # 10653

Group # 1945489

Sample # 9618378 02

COC # 549874

7044 0216

Sample Administration
Receipt Documentation Log

Doc Log ID: 216913



Group Number(s): 1945489

Client: Golder Associates**Delivery and Receipt Information**

Delivery Method:	<u>Fed Ex</u>	Arrival Timestamp:	<u>05/19/2018 10:00</u>
Number of Packages:	<u>3</u>	Number of Projects:	<u>1</u>
State/Province of Origin:	<u>NH</u>		

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:	2
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): Unpreserved

*Unpacked by Raysa Perez (14020) at 11:35 on 05/19/2018***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	0.5	DT	Wet	Y	Bagged	N
2	DT146	0.4	DT	Wet	Y	Bagged	N
3	DT146	0.9	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	mg	milligram(s)
C	degrees Celsius	mL	milliliter(s)
cfu	colony forming units	MPN	Most Probable Number
CP Units	cobalt-chloroplatinate units	N.D.	non-detect
F	degrees Fahrenheit	ng	nanogram(s)
g	gram(s)	NTU	nephelometric turbidity units
IU	International Units	pg/L	picogram/liter
kg	kilogram(s)	RL	Reporting Limit
L	liter(s)	TNTC	Too Numerous To Count
lb.	pound(s)	µg	microgram(s)
m3	cubic meter(s)	µL	microliter(s)
meq	milliequivalents	umhos/cm	micromhos/cm
<	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.

This report shall not be reproduced except in full, without the written approval of the laboratory.

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.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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.
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.



ANALYSIS REPORT

Prepared by:

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

Prepared for:

Golder Associates
670 North Commercial Street
Suite 103
Manchester NH 03101

Report Date: June 19, 2018 10:51

Project: SGPP-Merrimack NH

Account #: 10253
Group Number: 1948018
SDG: GOA18
PO Number: PROJECT: 166-8623
State of Sample Origin: VT

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at <http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>. To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To Golder Associates
Electronic Copy To Golder Associates
Electronic Copy To Environmental Standards
Electronic Copy To Environmental Standards
Electronic Copy To Golder Associates

Attn: Scott Drew
Attn: Ross Bennett
Attn: SaintGobain
Attn: Meg Michell
Attn: Jim Peace

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250



SAMPLE INFORMATION

<u>Client Sample Description</u>	<u>Sample Collection Date/Time</u>	<u>ELLE#</u>
SGPP-MH-23 Grab Surface Water	05/24/2018 11:40	9629858
SGPP-MH-5 Grab Surface Water	05/24/2018 11:35	9629859
SGPP-Outfall 001 Grab Surface Water	05/24/2018 10:15	9629860
SW-MERR-201W-NS Grab Surface Water	05/24/2018 08:55	9629861
SW-MERR-201W-IC Grab Surface Water	05/24/2018 09:45	9629862
SW-MERR-301W-NS Grab Surface Water	05/24/2018 13:00	9629863
SW-MERR-302W-NS Grab Surface Water	05/24/2018 13:45	9629864
SW-MERR-302W-IC Grab Surface Water	05/24/2018 14:00	9629865
SW-DB-101 Grab Surface Water	05/24/2018 13:25	9629866
SW-DB-102 Grab Surface Water	05/24/2018 13:25	9629867
SW-MERR-101W-NS Grab Surface Water	05/24/2018 08:55	9629868
SW-MERR-202W-NS Grab Surface Water	05/24/2018 09:50	9629869
SW-MERR-202W-IC Grab Surface Water	05/24/2018 10:00	9629870
SW-MERR-303W-NS Grab Surface Water	05/24/2018 14:10	9629871
SW-MERR-401W-NS Grab Surface Water	05/24/2018 13:00	9629872
DUP-1 Grab Surface Water	05/24/2018 08:55	9629873
DUP-2 Grab Surface Water	05/24/2018 13:00	9629874
EB-1 Grab Water	05/24/2018 10:45	9629875
FB-1 Grab Water	05/24/2018 10:55	9629876
TB-1 Water	05/24/2018	9629877

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

Project Name: SGPP-Merrimack NH
ELLE Group #: 1948018

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:

EPA 537 Version 1.1 Modified, LC/MS/MS Miscellaneous

Sample #s: 9629860

The recovery for labeled compound used as extraction standard C2-4:2-FTS is outside of QC acceptance limits as noted on the QC Summary. Since the result is high and native compound 4:2-FTS is not detected, the data is reported.

Reporting limits were raised due to interference from the sample matrix.

Sample #s: 9629875, 9629877

The recovery for the method blank labeled compound(s) used as extraction standard(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and no target analytes were detected, the data is reported.

The LCS/LCSD labeled compound(s) used as extraction standard(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

Sample #s: 9629876

The recovery for the method blank labeled compound(s) used as extraction standard(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and no target analytes were detected, the data is reported.

The LCS/LCSD labeled compound(s) used as extraction standard(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

The recovery for the sample labeled compound(s) used as extraction

standard(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and no target analytes were detected, the data is reported.

Sample #s: 9629859

The recovery for the method blank labeled compound(s) used as extraction standard(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and no target analytes were detected, the data is reported.

The LCS/LCSD labeled compound(s) used as extraction standard(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

The sample injection internal standard peak areas were outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

The recovery for labeled compound(s) used as extraction standard(s) is outside of QC acceptance limits as noted on the QC Summary due to the matrix of the sample.

Sample #s: 9629858, 9629863, 9629864, 9629865, 9629866, 9629867, 9629869, 9629870, 9629871, 9629872

The recovery for the method blank labeled compound(s) used as extraction standard(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and no target analytes were detected, the data is reported.

The LCS/LCSD labeled compound(s) used as extraction standard(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

The sample injection internal standard peak areas were outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC summary due to the matrix of the sample.

Sample #s: 9629874

The recovery for the method blank labeled compound(s) used as extraction standard(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and no target analytes were detected, the data is reported.

The LCS/LCSD labeled compound(s) used as extraction standard(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

The sample injection internal standard peak areas were outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

The recovery for several labeled compounds used as extraction standards

is outside of QC acceptance limits as noted on the QC Summary. The following corrective action was taken:

This sample was re-extracted and the recovery for labeled compounds used as extraction standards is again outside of QC acceptance limits.

The data reported is from the initial trial and both sets of data are included in the data package.

Sample #s: 9629861, 9629862, 9629868, 9629873

The recovery for the sample injection standard and the labeled compound used as extraction standards is outside the QC acceptance limits as noted on the QC Summary. The following corrective action was taken: The sample was reextracted outside the holding time. The data is reported from the in-hold extraction. Both sets of data are included in the data package.

Batch #: 18149021 (Sample number(s): 9629860-9629862, 9629868, 9629873)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD exceeded the acceptance window indicating a positive bias: NMePFOSAE, NMePFOSA, NMePFOSA

The relative percent difference(s) for the following analyte(s) in the LCS/LCSD were outside acceptance windows: NMePFOSA

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9629860, 9629861, 9629862, 9629868, 9629873

The recovery(ies) for one or more surrogates were below the acceptance window for sample(s) 9629861, 9629862, 9629868, 9629873, Blank, LCS, LCSD

Batch #: 18150011 (Sample number(s): 9629858-9629859, 9629863-9629867, 9629869-9629872, 9629874-9629877)

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9629858, 9629859, 9629863, 9629864, 9629865, 9629866, 9629867, 9629869, 9629870, 9629871, 9629872, 9629874, 9629876, Blank, LCS

SW-846 8321B, LC/MS/MS Miscellaneous

Sample #s: 9629860

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

Batch #: 18150005 (Sample number(s): 9629860-9629862, 9629868, 9629873)

The recovery(ies) for one or more surrogates exceeded the acceptance window indicating a positive bias for sample(s) 9629860

SW-846 6010C, Metals

Batch #: 181491063601 (Sample number(s): 9629859-9629875 UNSPK: 9629860 BKG: 9629860)

The recovery(ies) for the following analyte(s) in the MS and/or MSD were below the acceptance window: Calcium, Sodium

EPA 300.0, Wet Chemistry

Batch #: 18145987117B (Sample number(s): 9629864-9629872 UNSPK: P629006 BKG: P629006)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Chloride

Batch #: 18145987217A (Sample number(s): 9629873-9629875 UNSPK: P630130 BKG: P630130)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a

positive bias: Nitrate Nitrogen

EPA 350.1, Wet Chemistry

Batch #: 18151107101A (Sample number(s): 9629870-9629875 UNSPK: 9629870 BKG: 9629870)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Ammonia Nitrogen

SM 2320 B-2011, Wet Chemistry

Batch #: 18149003102A (Sample number(s): 9629862, 9629865-9629866, 9629868-9629872, 9629874-9629875 UNSPK: 9629865 BKG: 9629860, 9629865)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Total Alkalinity to pH 4.5

Batch #: 18149003103A (Sample number(s): 9629859, 9629861, 9629863-9629864, 9629873 UNSPK: P628998 BKG: P628998, P629012)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Total Alkalinity to pH 4.5

SM 2540 D-2011, Wet Chemistry

Batch #: 18151385801A (Sample number(s): 9629859-9629875 BKG: P630300)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Total Suspended Solids

Analysis Report

Sample Description: SGPP-MH-23 Grab Surface Water
SGPP/166-8623**Golder Associates**
ELLE Sample #: WW 9629858
ELLE Group #: 1948018
Matrix: Surface Water**Project Name:** SGPP-Merrimack NH**Submittal Date/Time:** 05/25/2018 10:10**Collection Date/Time:** 05/24/2018 11:40**SDG#:** GOA18-01

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous EPA 537 Version 1.1 Modified			ng/l	ng/l	ng/l	
14473	NEtFOSAA	2991-50-6	10	0.92	2.8	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.92 U	0.92	2.8	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonic Acid	375-73-5	1.5	0.28	0.92	1
14473	Perfluorobutanoic acid	375-22-4	150	1.8	5.5	1
14473	Perfluorodecanoic acid	335-76-2	20	0.92	1.8	1
14473	Perfluorododecanoic acid	307-55-1	5.9	0.28	0.92	1
14473	Perfluoroheptanoic acid	375-85-9	250	2.8	9.2	10
14473	Perfluorohexanesulfonic Acid	355-46-4	5.0	0.37	1.8	1
14473	Perfluorohexanoic acid	307-24-4	420	3.7	18	10
14473	Perfluorononanoic acid	375-95-1	59	0.37	1.8	1
14473	Perfluoro-Octanesulfonic Acid	1763-23-1	160	0.37	1.8	1
14473	Perfluorooctanoic acid	335-67-1	1,600	2.8	9.2	10
14473	Perfluoropentanoic acid	2706-90-3	320	18	55	10
14473	Perfluorotetradecanoic acid	376-06-7	1.8	0.28	0.92	1
14473	Perfluorotridecanoic acid	72629-94-8	2.6	0.28	0.92	1
14473	Perfluoroundecanoic acid	2058-94-8	7.6	0.37	1.8	1

The recovery for the method blank labeled compound(s) used as extraction standard(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and no target analytes were detected, the data is reported.

The LCS/LCSD labeled compound(s) used as extraction standard(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

The sample injection internal standard peak areas were outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC summary due to the matrix of the sample.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

*=This limit was used in the evaluation of the final result

Sample Description: SGPP-MH-23 Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629858
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10

Collection Date/Time: 05/24/2018 11:40

SDG#: GOA18-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	16 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18150011	06/04/2018 02:54	Devon M Whooley	1
14473	16 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18150011	06/07/2018 14:01	Devon M Whooley	10
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18150011	05/30/2018 14:00	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: SGPP-MH-5 Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629859
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 11:35
SDG#: GOA18-02

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous EPA 537 Version 1.1 Modified			ng/l	ng/l	ng/l	
14473	NEtFOSAA	2991-50-6	3.6	0.89	2.7	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.89 U	0.89	2.7	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonic Acid	375-73-5	6.0	0.27	0.89	1
14473	Perfluorobutanoic acid	375-22-4	140	1.8	5.4	1
14473	Perfluorodecanoic acid	335-76-2	4.8	0.89	1.8	1
14473	Perfluorododecanoic acid	307-55-1	3.4	0.27	0.89	1
14473	Perfluoroheptanoic acid	375-85-9	360	2.7	8.9	10
14473	Perfluorohexanesulfonic Acid	355-46-4	16	0.36	1.8	1
14473	Perfluorohexanoic acid	307-24-4	740	3.6	18	10
14473	Perfluorononanoic acid	375-95-1	14	0.36	1.8	1
14473	Perfluoro-Octanesulfonic Acid	1763-23-1	73	0.36	1.8	1
14473	Perfluorooctanoic acid	335-67-1	2,000	27	89	100
14473	Perfluoropentanoic acid	2706-90-3	540	18	54	10
14473	Perfluorotetradecanoic acid	376-06-7	3.7	0.27	0.89	1
14473	Perfluorotridecanoic acid	72629-94-8	3.0	0.27	0.89	1
14473	Perfluoroundecanoic acid	2058-94-8	1.9	0.36	1.8	1

The recovery for the method blank labeled compound(s) used as extraction standard(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and no target analytes were detected, the data is reported.

The LCS/LCSD labeled compound(s) used as extraction standard(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

The sample injection internal standard peak areas were outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

The recovery for labeled compound(s) used as extraction standard(s) is outside of QC acceptance limits as noted on the QC Summary due to the matrix of the sample.

Metals		SW-846 6010C	mg/l	mg/l	mg/l	
01750	Calcium	7440-70-2	29.7	0.0600	0.400	1
01754	Iron	7439-89-6	0.466	0.0805	0.400	1
01757	Magnesium	7439-95-4	6.79	0.0374	0.200	1
07058	Manganese	7439-96-5	0.0181	0.0016	0.0100	1
01762	Potassium	7440-09-7	4.13	0.179	1.00	1
01767	Sodium	7440-23-5	158	0.321	2.00	1

*=This limit was used in the evaluation of the final result

Sample Description: SGPP-MH-5 Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629859
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 11:35
SDG#: GOA18-02

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Wet Chemistry EPA 300.0						
00224	Chloride	16887-00-6	336	20.0	40.0	100
00368	Nitrate Nitrogen	14797-55-8	1.2	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	Sulfate	14808-79-8	14.4	1.5	5.0	5
EPA 350.1						
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
SM 2320 B-2011						
12150	Total Alkalinity to pH 4.5	n.a.	21.5	1.7	5.0	1
12149	Bicarbonate Alkalinity	n.a.	21.5	1.7	5.0	1
SM 2540 D-2011						
13858	Total Suspended Solids	n.a.	4.03	1.00	3.00	1
SM 4500-SO3 B-2011						
00229	Sulfite	14265-45-3	1.5 U	1.5	5.0	1
The 40 CFR Part 136 requires that this analysis be performed immediately (within 15 minutes) upon sample collection. Because this was not possible, the result may not be used for reporting purposes.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	16 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18150011	06/04/2018 03:08	Devon M Whooley	1
14473	16 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18150011	06/07/2018 14:15	Devon M Whooley	10
14473	16 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18150011	06/11/2018 20:09	Devon M Whooley	100
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18150011	05/30/2018 14:00	Anthony C Polaski	1
01750	Calcium	SW-846 6010C	1	181491063601	05/31/2018 12:13	Lisa J Cooke	1
01754	Iron	SW-846 6010C	1	181491063601	06/01/2018 11:33	Lisa J Cooke	1
01757	Magnesium	SW-846 6010C	1	181491063601	05/31/2018 12:13	Lisa J Cooke	1
07058	Manganese	SW-846 6010C	1	181491063601	05/31/2018 12:13	Lisa J Cooke	1
01762	Potassium	SW-846 6010C	1	181491063601	05/31/2018 12:13	Lisa J Cooke	1
01767	Sodium	SW-846 6010C	1	181491063601	05/31/2018 12:13	Lisa J Cooke	1
10636	ICP-WW/TL, 3010A (tot) - U4	SW-846 3010A	1	181491063601	05/30/2018 16:20	JoElla L Rice	1

*=This limit was used in the evaluation of the final result

Sample Description: SGPP-MH-5 Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629859
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 11:35
SDG#: GOA18-02

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00224	Chloride	EPA 300.0	1	18145987117A	05/30/2018 06:30	Clinton M Wilson	100
00368	Nitrate Nitrogen	EPA 300.0	1	18145987117A	05/26/2018 00:21	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	18145987117A	05/26/2018 00:21	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	18145987117A	05/26/2018 00:21	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	18150107103A	05/30/2018 13:59	Ashlynn M Cornelius	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-2011	1	18149003103A	05/30/2018 04:32	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-2011	1	18149003103A	05/30/2018 04:32	Jeremy L Bolf	1
13858	Total Suspended Solids	SM 2540 D-2011	1	18151385801A	05/31/2018 09:42	Amy L Hankins	1
00229	Sulfite	SM 4500-SO3 B-2011	1	18150022901A	05/30/2018 09:55	Michelle L Lalli	1

*=This limit was used in the evaluation of the final result

Sample Description: SGPP-Outfall 001 Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629860
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 10:15
SDG#: GOA18-03

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous EPA 537 Version 1.1 Modified						
			ng/l	ng/l	ng/l	
14473	10:2-fluorotelomersulfonate	120226-60-0	27 U	27	82	10
14473	4:2 fluorotelomersulfonate	757124-72-4	9.1 U	9.1	27	10
14473	6:2 fluorotelomersulfonate	27619-97-2	86	9.1	18	10
14473	8:2 fluorotelomersulfonate	39108-34-4	18 U	18	55	10
14473	NEtFOSAA	2991-50-6	9.4 J	9.1	27	10
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NEtPFOSA	4151-50-2	27 U	27	82	10
	NEtPFOSA is the acronym for N-ethylperfluoro-1-octanesulfonamide					
14473	NEtPFOSAE	1691-99-2	9.1 U	9.1	27	10
	NEtPFOSAE is the acronym for 2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol					
14473	NMeFOSAA	2355-31-9	9.1 U	9.1	27	10
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMePFOSA	31506-32-8	27 U	27	82	10
	NMePFOSA is the acronym for N-methylperfluoro-1-octanesulfonamide					
14473	NMePFOSAE	24448-09-7	9.1 U	9.1	27	10
	NMePFOSAE is the acronym for 2-(N-methylperfluoro-1-octanesulfonamido)-ethanol					
14473	Perfluorobutanesulfonic Acid	375-73-5	7.8 J	2.7	9.1	10
14473	Perfluorobutanoic acid	375-22-4	160	18	55	10
14473	Perfluorodecanesulfonate	335-77-3	5.5 U	5.5	18	10
14473	Perfluorodecanoic acid	335-76-2	10 J	9.1	18	10
14473	Perfluorododecanesulfonate	79780-39-5	2.7 U	2.7	9.1	10
14473	Perfluorododecanoic acid	307-55-1	6.1 J	2.7	9.1	10
14473	Perfluoroheptanesulfonate	375-92-8	3.6 U	3.6	18	10
14473	Perfluoroheptanoic acid	375-85-9	400	2.7	9.1	10
14473	Perfluorohexadecanoic acid	67905-19-5	2.7 U	2.7	9.1	10
14473	Perfluorohexanesulfonic Acid	355-46-4	20	3.6	18	10
14473	Perfluorohexanoic acid	307-24-4	760	3.6	18	10
14473	Perfluorononanesulfonate	474511-07-4	5.5 U	5.5	18	10
14473	Perfluorononanoic acid	375-95-1	17 J	3.6	18	10
14473	Perfluorooctadecanoic acid	16517-11-6	2.7 U	2.7	9.1	10
14473	Perfluorooctanesulfonamide	754-91-6	9.1 U	9.1	27	10
14473	Perfluoro-Octanesulfonic Acid	1763-23-1	110	3.6	18	10
14473	Perfluorooctanoic acid	335-67-1	2,100	27	91	100
14473	Perfluoropentanesulfonate	2706-91-4	7.0 J	3.6	18	10
14473	Perfluoropentanoic acid	2706-90-3	530	18	55	10
14473	Perfluorotetradecanoic acid	376-06-7	2.7 U	2.7	9.1	10
14473	Perfluorotridecanoic acid	72629-94-8	2.8 J	2.7	9.1	10
14473	Perfluoroundecanoic acid	2058-94-8	4.8 J	3.6	18	10

The recovery for labeled compound used as extraction standard
C2-4:2-FTS is outside of QC acceptance limits as noted on the

*=This limit was used in the evaluation of the final result

Sample Description: SGPP-Outfall 001 Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629860
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submission Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 10:15
SDG#: GOA18-03

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
QC Summary. Since the result is high and native compound 4:2-FTS is not detected, the data is reported. Reporting limits were raised due to interference from the sample matrix.						
LC/MS/MS Miscellaneous SW-846 8321B						
14654	HFPODA	13252-13-6	1.5	0.28	0.94	1
HFPODA is the acronym for 2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid						
14654	NaDONA	958445-44-8	0.28 U	0.28	0.94	1
NaDONA is the acronym for Sodium dodecafluoro-3H-4,8-dioxanonanoate						
The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.						
Metals SW-846 6010C						
01743	Aluminum	7429-90-5	0.0894 UK2	0.0894	0.400	1
01750	Calcium	7440-70-2	31.7	0.0600	0.400	1
01754	Iron	7439-89-6	0.0805 UK2	0.0805	0.400	1
01757	Magnesium	7439-95-4	7.03	0.0374	0.200	1
07058	Manganese	7439-96-5	0.0222	0.0016	0.0100	1
01762	Potassium	7440-09-7	4.19	0.179	1.00	1
01767	Sodium	7440-23-5	155	0.321	2.00	1
07072	Zinc	7440-66-6	0.0371 J	0.0065	0.0400	1
SW-846 6020A						
06024	Antimony	7440-36-0	0.00045 U	0.00045	0.0020	1
06025	Arsenic	7440-38-2	0.00072 U	0.00072	0.0040	1
06026	Barium	7440-39-3	0.0802	0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000071 U	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015 U	0.00015	0.0010	1
06031	Chromium	7440-47-3	0.00087 U	0.00087	0.0040	1
06032	Cobalt	7440-48-4	0.00016 U	0.00016	0.0010	1
06033	Copper	7440-50-8	0.00086 J	0.00054	0.0040	1
06035	Lead	7439-92-1	0.00011 U	0.00011	0.0020	1
06039	Nickel	7440-02-0	0.0019 J	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	Thallium	7440-28-0	0.00012 U	0.00012	0.0010	1
06048	Vanadium	7440-62-2	0.00021 U	0.00021	0.0010	1
SW-846 7470A						
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry EPA 300.0						
00224	Chloride	16887-00-6	312	20.0	40.0	100

*=This limit was used in the evaluation of the final result

Sample Description: SGPP-Outfall 001 Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629860
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submission Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 10:15
SDG#: GOA18-03

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Wet Chemistry						
	EPA 300.0		mg/l	mg/l	mg/l	
00368	Nitrate Nitrogen	14797-55-8	0.97	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	Sulfate	14808-79-8	11.2	1.5	5.0	5
EPA 350.1						
	Ammonia Nitrogen		mg/l	mg/l	mg/l	
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
SM 2320 B-2011						
	Total Alkalinity to pH 4.5		mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	
12150	Total Alkalinity to pH 4.5	n.a.	21.7	1.7	5.0	1
12149	Bicarbonate Alkalinity	n.a.	21.7	1.7	5.0	1
SM 2540 D-2011						
	Total Suspended Solids		mg/l	mg/l	mg/l	
13858	Total Suspended Solids	n.a.	1.34 J	1.00	3.00	1
SM 4500-SO3 B-2011						
	Sulfite		mg/l	mg/l	mg/l	
00229	Sulfite	14265-45-3	1.5 U	1.5	5.0	1
The 40 CFR Part 136 requires that this analysis be performed immediately (within 15 minutes) upon sample collection. Because this was not possible, the result may not be used for reporting purposes.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	32 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18149021	06/09/2018 03:24	Jason W Knight	10
14473	32 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18149021	06/10/2018 11:10	Devon M Whooley	100
14654	HFPODA, NaDONA	SW-846 8321B	1	18150005	05/31/2018 14:54	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18149021	05/29/2018 14:20	Danielle D McCully	1
14659	PFECA Water Prep	SW-846 8321B	1	18150005	05/30/2018 07:15	Pamela Rothharpt	1
01743	Aluminum	SW-846 6010C	1	181491063601	05/31/2018 11:52	Lisa J Cooke	1
01750	Calcium	SW-846 6010C	1	181491063601	05/31/2018 11:52	Lisa J Cooke	1
01754	Iron	SW-846 6010C	1	181491063601	05/31/2018 11:52	Lisa J Cooke	1
01757	Magnesium	SW-846 6010C	1	181491063601	05/31/2018 11:52	Lisa J Cooke	1
07058	Manganese	SW-846 6010C	1	181491063601	05/31/2018 11:52	Lisa J Cooke	1
01762	Potassium	SW-846 6010C	1	181491063601	05/31/2018 11:52	Lisa J Cooke	1
01767	Sodium	SW-846 6010C	1	181491063601	05/31/2018 11:52	Lisa J Cooke	1
07072	Zinc	SW-846 6010C	1	181491063601	05/31/2018 11:52	Lisa J Cooke	1

*=This limit was used in the evaluation of the final result

Analysis Report

Sample Description: SGPP-Outfall 001 Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629860
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 10:15
SDG#: GOA18-03

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06024	Antimony	SW-846 6020A	1	181491063901A	05/30/2018 07:38	Choon Y Tian	1
06025	Arsenic	SW-846 6020A	1	181491063901A	05/30/2018 07:38	Choon Y Tian	1
06026	Barium	SW-846 6020A	1	181491063901D	05/30/2018 07:38	Choon Y Tian	1
06027	Beryllium	SW-846 6020A	1	181491063901A	05/30/2018 07:38	Choon Y Tian	1
06028	Cadmium	SW-846 6020A	1	181491063901A	05/30/2018 07:38	Choon Y Tian	1
06031	Chromium	SW-846 6020A	1	181491063901A	05/30/2018 07:38	Choon Y Tian	1
06032	Cobalt	SW-846 6020A	1	181491063901A	05/30/2018 07:38	Choon Y Tian	1
06033	Copper	SW-846 6020A	1	181491063901A	05/30/2018 07:38	Choon Y Tian	1
06035	Lead	SW-846 6020A	1	181491063901A	05/30/2018 07:38	Choon Y Tian	1
06039	Nickel	SW-846 6020A	1	181491063901A	05/30/2018 07:38	Choon Y Tian	1
06041	Selenium	SW-846 6020A	1	181491063901B	05/30/2018 07:38	Choon Y Tian	1
06042	Silver	SW-846 6020A	1	181491063901A	05/30/2018 07:38	Choon Y Tian	1
06045	Thallium	SW-846 6020A	1	181491063901A	05/30/2018 07:38	Choon Y Tian	1
06048	Vanadium	SW-846 6020A	1	181491063901A	05/30/2018 07:38	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	181510571301	06/01/2018 07:10	Damary Valentin	1
10636	ICP-WW/TL, 3010A (tot) - U4	SW-846 3010A	1	181491063601	05/30/2018 16:20	JoElla L Rice	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	181491063901	05/29/2018 21:00	Annamaria Kuhns	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	181510571301	05/31/2018 16:35	JoElla L Rice	1
00224	Chloride	EPA 300.0	1	18145987117A	05/30/2018 06:47	Clinton M Wilson	100
00368	Nitrate Nitrogen	EPA 300.0	1	18145987117A	05/26/2018 01:13	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	18145987117A	05/26/2018 01:13	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	18145987117A	05/26/2018 01:13	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	18150107103B	05/30/2018 14:20	Ashlynn M Cornelius	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-2011	1	18149003102B	05/30/2018 00:35	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-2011	1	18149003102B	05/30/2018 00:35	Jeremy L Bolf	1
13858	Total Suspended Solids	SM 2540 D-2011	1	18151385801A	05/31/2018 09:42	Amy L Hankins	1
00229	Sulfite	SM 4500-SO3 B-2011	1	18150022901A	05/30/2018 09:55	Michelle L Lalli	1

*=This limit was used in the evaluation of the final result

Analysis Report

Sample Description: SW-MERR-201W-NS Grab Surface Water
SGPP/166-8623**Golder Associates**
ELLE Sample #: WW 9629861
ELLE Group #: 1948018
Matrix: Surface Water**Project Name:** SGPP-Merrimack NH**Submission Date/Time:** 05/25/2018 10:10**Collection Date/Time:** 05/24/2018 08:55**SDG#:** GOA18-04

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous EPA 537 Version 1.1 Modified						
			ng/l	ng/l	ng/l	
14473	10:2-fluorotelomersulfonate	120226-60-0	2.7 U	2.7	8.2	1
14473	4:2 fluorotelomersulfonate	757124-72-4	0.91 U	0.91	2.7	1
14473	6:2 fluorotelomersulfonate	27619-97-2	6.0	0.91	1.8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	1.8 U	1.8	5.5	1
14473	NEtFOSAA	2991-50-6	0.91 U	0.91	2.7	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NEtPFOSA	4151-50-2	2.7 U	2.7	8.2	1
	NEtPFOSA is the acronym for N-ethylperfluoro-1-octanesulfonamide					
14473	NEtPFOSAE	1691-99-2	0.91 U	0.91	2.7	1
	NEtPFOSAE is the acronym for 2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol					
14473	NMeFOSAA	2355-31-9	0.91 U	0.91	2.7	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMePFOSA	31506-32-8	2.7 U	2.7	8.2	1
	NMePFOSA is the acronym for N-methylperfluoro-1-octanesulfonamide					
14473	NMePFOSAE	24448-09-7	0.91 U	0.91	2.7	1
	NMePFOSAE is the acronym for 2-(N-methylperfluoro-1-octanesulfonamido)-ethanol					
14473	Perfluorobutanesulfonic Acid	375-73-5	0.97	0.27	0.91	1
14473	Perfluorobutanoic acid	375-22-4	9.1	1.8	5.5	1
14473	Perfluorodecanesulfonate	335-77-3	0.55 U	0.55	1.8	1
14473	Perfluorodecanoic acid	335-76-2	1.8 J	0.91	1.8	1
14473	Perfluorododecanesulfonate	79780-39-5	0.27 U	0.27	0.91	1
14473	Perfluorododecanoic acid	307-55-1	0.27 U	0.27	0.91	1
14473	Perfluoroheptanesulfonate	375-92-8	0.36 U	0.36	1.8	1
14473	Perfluoroheptanoic acid	375-85-9	17	0.27	0.91	1
14473	Perfluorohexadecanoic acid	67905-19-5	0.27 U	0.27	0.91	1
14473	Perfluorohexanesulfonic Acid	355-46-4	1.2 J	0.36	1.8	1
14473	Perfluorohexanoic acid	307-24-4	28	0.36	1.8	1
14473	Perfluorononanesulfonate	474511-07-4	0.55 U	0.55	1.8	1
14473	Perfluorononanoic acid	375-95-1	0.69 J	0.36	1.8	1
14473	Perfluorooctadecanoic acid	16517-11-6	0.27 U	0.27	0.91	1
14473	Perfluorooctanesulfonamide	754-91-6	1.6 J	0.91	2.7	1
14473	Perfluoro-Octanesulfonic Acid	1763-23-1	7.2	0.36	1.8	1
14473	Perfluorooctanoic acid	335-67-1	54	0.27	0.91	1
14473	Perfluoropentanesulfonate	2706-91-4	0.51 J	0.36	1.8	1
14473	Perfluoropentanoic acid	2706-90-3	24	1.8	5.5	1
14473	Perfluorotetradecanoic acid	376-06-7	0.56 J	0.27	0.91	1
14473	Perfluorotridecanoic acid	72629-94-8	0.27 U	0.27	0.91	1
14473	Perfluoroundecanoic acid	2058-94-8	1.5 J	0.36	1.8	1

The recovery for the sample injection standard and the labeled compound used as extraction standards is outside the QC acceptance limits as noted

*=This limit was used in the evaluation of the final result

Sample Description: SW-MERR-201W-NS Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629861
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 08:55
SDG#: GOA18-04

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
on the QC Summary. The following corrective action was taken: The sample was reextracted outside the holding time. The data is reported from the in-hold extraction. Both sets of data are included in the data package.						
LC/MS/MS Miscellaneous		SW-846 8321B	ng/l	ng/l	ng/l	
14654	HFPODA	13252-13-6	0.30 U	0.30	0.99	1
	HFPODA is the acronym for 2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid					
14654	NaDONA	958445-44-8	0.30 U	0.30	0.99	1
	NaDONA is the acronym for Sodium dodecafluoro-3H-4,8-dioxanonanoate					
Metals		SW-846 6010C	mg/l	mg/l	mg/l	
01743	Aluminum	7429-90-5	0.0894 UK2	0.0894	0.400	1
01750	Calcium	7440-70-2	4.49	0.0600	0.400	1
01754	Iron	7439-89-6	0.357 J	0.0805	0.400	1
01757	Magnesium	7439-95-4	0.933	0.0374	0.200	1
07058	Manganese	7439-96-5	0.0346	0.0016	0.0100	1
01762	Potassium	7440-09-7	0.960 J	0.179	1.00	1
01767	Sodium	7440-23-5	16.5	0.321	2.00	1
07072	Zinc	7440-66-6	0.0065 U	0.0065	0.0400	1
		SW-846 6020A	mg/l	mg/l	mg/l	
06024	Antimony	7440-36-0	0.00045 U	0.00045	0.0020	1
06025	Arsenic	7440-38-2	0.00072 U	0.00072	0.0040	1
06026	Barium	7440-39-3	0.0099	0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000071 U	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015 U	0.00015	0.0010	1
06031	Chromium	7440-47-3	0.00087 U	0.00087	0.0040	1
06032	Cobalt	7440-48-4	0.00016 U	0.00016	0.0010	1
06033	Copper	7440-50-8	0.00067 J	0.00054	0.0040	1
06035	Lead	7439-92-1	0.00024 J	0.00011	0.0020	1
06039	Nickel	7440-02-0	0.0010 U	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	Thallium	7440-28-0	0.00012 U	0.00012	0.0010	1
06048	Vanadium	7440-62-2	0.00033 J	0.00021	0.0010	1
		SW-846 7470A	mg/l	mg/l	mg/l	
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry		EPA 300.0	mg/l	mg/l	mg/l	
00224	Chloride	16887-00-6	24.0	1.0	2.0	5
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	Sulfate	14808-79-8	4.6 J	1.5	5.0	5

*=This limit was used in the evaluation of the final result

Sample Description: SW-MERR-201W-NS Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629861
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submission Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 08:55
SDG#: GOA18-04

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Wet Chemistry						
12892	Ammonia Nitrogen	7664-41-7	0.15	mg/l 0.050	mg/l 0.10	1
SM 2320 B-2011						
12150	Total Alkalinity to pH 4.5	n.a.	8.3	mg/l as CaCO3 1.7	mg/l as CaCO3 5.0	1
12149	Bicarbonate Alkalinity	n.a.	8.3	mg/l as CaCO3 1.7	mg/l as CaCO3 5.0	1
SM 2540 D-2011						
13858	Total Suspended Solids	n.a.	3.88	mg/l 1.00	mg/l 3.00	1
SM 4500-SO3 B-2011						
00229	Sulfite	14265-45-3	1.5 U	mg/l 1.5	mg/l 5.0	1
The 40 CFR Part 136 requires that this analysis be performed immediately (within 15 minutes) upon sample collection. Because this was not possible, the result may not be used for reporting purposes.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	32 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18149021	06/10/2018 11:24	Devon M Whooley	1
14654	HFPODA, NaDONA	SW-846 8321B	1	18150005	05/31/2018 15:07	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18149021	05/29/2018 14:20	Danielle D McCully	1
14659	PFECA Water Prep	SW-846 8321B	1	18150005	05/30/2018 07:15	Pamela Rothharpt	1
01743	Aluminum	SW-846 6010C	1	181491063601	05/31/2018 12:16	Lisa J Cooke	1
01750	Calcium	SW-846 6010C	1	181491063601	06/01/2018 11:36	Lisa J Cooke	1
01754	Iron	SW-846 6010C	1	181491063601	06/01/2018 11:36	Lisa J Cooke	1
01757	Magnesium	SW-846 6010C	1	181491063601	06/01/2018 11:36	Lisa J Cooke	1
07058	Manganese	SW-846 6010C	1	181491063601	05/31/2018 12:16	Lisa J Cooke	1
01762	Potassium	SW-846 6010C	1	181491063601	05/31/2018 12:16	Lisa J Cooke	1
01767	Sodium	SW-846 6010C	1	181491063601	05/31/2018 12:16	Lisa J Cooke	1
07072	Zinc	SW-846 6010C	1	181491063601	05/31/2018 12:16	Lisa J Cooke	1
06024	Antimony	SW-846 6020A	1	181491063901A	05/30/2018 08:27	Choon Y Tian	1
06025	Arsenic	SW-846 6020A	1	181491063901A	05/30/2018 08:27	Choon Y Tian	1
06026	Barium	SW-846 6020A	1	181491063901D	05/30/2018 08:27	Choon Y Tian	1
06027	Beryllium	SW-846 6020A	1	181491063901A	05/30/2018 08:27	Choon Y Tian	1
06028	Cadmium	SW-846 6020A	1	181491063901A	05/30/2018 08:27	Choon Y Tian	1
06031	Chromium	SW-846 6020A	1	181491063901A	05/30/2018 08:27	Choon Y Tian	1
06032	Cobalt	SW-846 6020A	1	181491063901A	05/30/2018 08:27	Choon Y Tian	1
06033	Copper	SW-846 6020A	1	181491063901A	05/30/2018 08:27	Choon Y Tian	1

*=This limit was used in the evaluation of the final result

Sample Description: SW-MERR-201W-NS Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629861
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submission Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 08:55
SDG#: GOA18-04

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06035	Lead	SW-846 6020A	1	181491063901A	05/30/2018 08:27	Choon Y Tian	1
06039	Nickel	SW-846 6020A	1	181491063901A	05/30/2018 08:27	Choon Y Tian	1
06041	Selenium	SW-846 6020A	1	181491063901B	05/30/2018 08:27	Choon Y Tian	1
06042	Silver	SW-846 6020A	1	181491063901A	05/30/2018 08:27	Choon Y Tian	1
06045	Thallium	SW-846 6020A	1	181491063901A	05/30/2018 08:27	Choon Y Tian	1
06048	Vanadium	SW-846 6020A	1	181491063901A	05/30/2018 08:27	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	181510571301	06/01/2018 07:12	Damary Valentin	1
10636	ICP-WW/TL, 3010A (tot) - U4	SW-846 3010A	1	181491063601	05/30/2018 16:20	JoElla L Rice	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	181491063901	05/29/2018 21:00	Annamaria Kuhns	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	181510571301	05/31/2018 16:35	JoElla L Rice	1
00224	Chloride	EPA 300.0	1	18145987117A	05/26/2018 01:30	Clinton M Wilson	5
00368	Nitrate Nitrogen	EPA 300.0	1	18145987117A	05/26/2018 01:30	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	18145987117A	05/26/2018 01:30	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	18145987117A	05/26/2018 01:30	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	18150107103B	05/30/2018 14:27	Ashlynn M Cornelius	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-2011	1	18149003103A	05/30/2018 04:59	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-2011	1	18149003103A	05/30/2018 04:59	Jeremy L Bolf	1
13858	Total Suspended Solids	SM 2540 D-2011	1	18151385801A	05/31/2018 09:43	Amy L Hankins	1
00229	Sulfite	SM 4500-SO3 B-2011	1	18150022901A	05/30/2018 09:55	Michelle L Lalli	1

*=This limit was used in the evaluation of the final result

Sample Description: SW-MERR-201W-IC Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629862
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submission Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 09:45
SDG#: GOA18-05

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous EPA 537 Version 1.1 Modified						
			ng/l	ng/l	ng/l	
14473	10:2-fluorotelomersulfonate	120226-60-0	2.8 U	2.8	8.3	1
14473	4:2 fluorotelomersulfonate	757124-72-4	0.92 U	0.92	2.8	1
14473	6:2 fluorotelomersulfonate	27619-97-2	1.7 J	0.92	1.8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	1.8 U	1.8	5.5	1
14473	NEtFOSAA	2991-50-6	0.92 U	0.92	2.8	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NEtPFOSA	4151-50-2	2.8 U	2.8	8.3	1
	NEtPFOSA is the acronym for N-ethylperfluoro-1-octanesulfonamide					
14473	NEtPFOSAE	1691-99-2	0.92 U	0.92	2.8	1
	NEtPFOSAE is the acronym for 2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol					
14473	NMeFOSAA	2355-31-9	0.92 U	0.92	2.8	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMePFOSA	31506-32-8	2.8 U	2.8	8.3	1
	NMePFOSA is the acronym for N-methylperfluoro-1-octanesulfonamide					
14473	NMePFOSAE	24448-09-7	0.92 U	0.92	2.8	1
	NMePFOSAE is the acronym for 2-(N-methylperfluoro-1-octanesulfonamido)-ethanol					
14473	Perfluorobutanesulfonic Acid	375-73-5	0.97	0.28	0.92	1
14473	Perfluorobutanoic acid	375-22-4	3.6 J	1.8	5.5	1
14473	Perfluorodecanesulfonate	335-77-3	0.55 U	0.55	1.8	1
14473	Perfluorodecanoic acid	335-76-2	0.92 U	0.92	1.8	1
14473	Perfluorododecanesulfonate	79780-39-5	0.28 U	0.28	0.92	1
14473	Perfluorododecanoic acid	307-55-1	0.28 U	0.28	0.92	1
14473	Perfluoroheptanesulfonate	375-92-8	0.37 U	0.37	1.8	1
14473	Perfluoroheptanoic acid	375-85-9	6.2	0.28	0.92	1
14473	Perfluorohexadecanoic acid	67905-19-5	0.28 U	0.28	0.92	1
14473	Perfluorohexanesulfonic Acid	355-46-4	0.90 J	0.37	1.8	1
14473	Perfluorohexanoic acid	307-24-4	12	0.37	1.8	1
14473	Perfluorononanesulfonate	474511-07-4	0.55 U	0.55	1.8	1
14473	Perfluorononanoic acid	375-95-1	0.49 J	0.37	1.8	1
14473	Perfluorooctadecanoic acid	16517-11-6	0.28 U	0.28	0.92	1
14473	Perfluorooctanesulfonamide	754-91-6	0.92 U	0.92	2.8	1
14473	Perfluoro-Octanesulfonic Acid	1763-23-1	2.4	0.37	1.8	1
14473	Perfluorooctanoic acid	335-67-1	29	0.28	0.92	1
14473	Perfluoropentanesulfonate	2706-91-4	0.37 U	0.37	1.8	1
14473	Perfluoropentanoic acid	2706-90-3	9.9	1.8	5.5	1
14473	Perfluorotetradecanoic acid	376-06-7	0.28 U	0.28	0.92	1
14473	Perfluorotridecanoic acid	72629-94-8	0.28 U	0.28	0.92	1
14473	Perfluoroundecanoic acid	2058-94-8	0.37 U	0.37	1.8	1

The recovery for the sample injection standard and the labeled compound used as extraction standards is outside the QC acceptance limits as noted

*=This limit was used in the evaluation of the final result

Sample Description: SW-MERR-201W-IC Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629862
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 09:45
SDG#: GOA18-05

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
on the QC Summary. The following corrective action was taken: The sample was reextracted outside the holding time. The data is reported from the in-hold extraction. Both sets of data are included in the data package.						
LC/MS/MS Miscellaneous		SW-846 8321B	ng/l	ng/l	ng/l	
14654	HFPODA	13252-13-6	0.29 U	0.29	0.96	1
	HFPODA is the acronym for 2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid					
14654	NaDONA	958445-44-8	0.29 U	0.29	0.96	1
	NaDONA is the acronym for Sodium dodecafluoro-3H-4,8-dioxanonanoate					
Metals		SW-846 6010C	mg/l	mg/l	mg/l	
01743	Aluminum	7429-90-5	0.0894 U	0.0894	0.400	1
01750	Calcium	7440-70-2	4.15	0.0600	0.400	1
01754	Iron	7439-89-6	0.313 J	0.0805	0.400	1
01757	Magnesium	7439-95-4	0.830	0.0374	0.200	1
07058	Manganese	7439-96-5	0.0329	0.0016	0.0100	1
01762	Potassium	7440-09-7	1.02	0.179	1.00	1
01767	Sodium	7440-23-5	16.3	0.321	2.00	1
07072	Zinc	7440-66-6	0.0065 U	0.0065	0.0400	1
		SW-846 6020A	mg/l	mg/l	mg/l	
06024	Antimony	7440-36-0	0.00045 U	0.00045	0.0020	1
06025	Arsenic	7440-38-2	0.00072 U	0.00072	0.0040	1
06026	Barium	7440-39-3	0.0091	0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000071 U	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015 U	0.00015	0.0010	1
06031	Chromium	7440-47-3	0.00087 U	0.00087	0.0040	1
06032	Cobalt	7440-48-4	0.00016 U	0.00016	0.0010	1
06033	Copper	7440-50-8	0.00058 J	0.00054	0.0040	1
06035	Lead	7439-92-1	0.00024 J	0.00011	0.0020	1
06039	Nickel	7440-02-0	0.0010 U	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	Thallium	7440-28-0	0.00012 U	0.00012	0.0010	1
06048	Vanadium	7440-62-2	0.00036 J	0.00021	0.0010	1
		SW-846 7470A	mg/l	mg/l	mg/l	
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry		EPA 300.0	mg/l	mg/l	mg/l	
00224	Chloride	16887-00-6	23.4	1.0	2.0	5
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	Sulfate	14808-79-8	4.7 J	1.5	5.0	5

*=This limit was used in the evaluation of the final result

Sample Description: SW-MERR-201W-IC Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629862
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 09:45
SDG#: GOA18-05

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Wet Chemistry						
12892	Ammonia Nitrogen	7664-41-7	0.14	mg/l 0.050	mg/l 0.10	1
SM 2320 B-2011						
12150	Total Alkalinity to pH 4.5	n.a.	8.5	mg/l as CaCO3 1.7	mg/l as CaCO3 5.0	1
12149	Bicarbonate Alkalinity	n.a.	8.5	mg/l as CaCO3 1.7	mg/l as CaCO3 5.0	1
SM 2540 D-2011						
13858	Total Suspended Solids	n.a.	2.09 J	mg/l 1.00	mg/l 3.00	1
SM 4500-SO3 B-2011						
00229	Sulfite	14265-45-3	1.5 U	mg/l 1.5	mg/l 5.0	1
The 40 CFR Part 136 requires that this analysis be performed immediately (within 15 minutes) upon sample collection. Because this was not possible, the result may not be used for reporting purposes.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	32 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18149021	06/10/2018 11:39	Devon M Whooley	1
14654	HFPODA, NaDONA	SW-846 8321B	1	18150005	05/31/2018 15:20	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18149021	05/29/2018 14:20	Danielle D McCully	1
14659	PFECA Water Prep	SW-846 8321B	1	18150005	05/30/2018 07:15	Pamela Rothharpt	1
01743	Aluminum	SW-846 6010C	1	181491063601	05/31/2018 12:26	Lisa J Cooke	1
01750	Calcium	SW-846 6010C	1	181491063601	05/31/2018 12:26	Lisa J Cooke	1
01754	Iron	SW-846 6010C	1	181491063601	05/31/2018 12:26	Lisa J Cooke	1
01757	Magnesium	SW-846 6010C	1	181491063601	05/31/2018 12:26	Lisa J Cooke	1
07058	Manganese	SW-846 6010C	1	181491063601	05/31/2018 12:26	Lisa J Cooke	1
01762	Potassium	SW-846 6010C	1	181491063601	05/31/2018 12:26	Lisa J Cooke	1
01767	Sodium	SW-846 6010C	1	181491063601	05/31/2018 12:26	Lisa J Cooke	1
07072	Zinc	SW-846 6010C	1	181491063601	05/31/2018 12:26	Lisa J Cooke	1
06024	Antimony	SW-846 6020A	1	181491063901A	05/30/2018 08:30	Choon Y Tian	1
06025	Arsenic	SW-846 6020A	1	181491063901A	05/30/2018 08:30	Choon Y Tian	1
06026	Barium	SW-846 6020A	1	181491063901D	05/30/2018 08:30	Choon Y Tian	1
06027	Beryllium	SW-846 6020A	1	181491063901A	05/30/2018 08:30	Choon Y Tian	1
06028	Cadmium	SW-846 6020A	1	181491063901A	05/30/2018 08:30	Choon Y Tian	1
06031	Chromium	SW-846 6020A	1	181491063901A	05/30/2018 08:30	Choon Y Tian	1
06032	Cobalt	SW-846 6020A	1	181491063901A	05/30/2018 08:30	Choon Y Tian	1
06033	Copper	SW-846 6020A	1	181491063901A	05/30/2018 08:30	Choon Y Tian	1

*=This limit was used in the evaluation of the final result

Sample Description: SW-MERR-201W-IC Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629862
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submission Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 09:45
SDG#: GOA18-05

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06035	Lead	SW-846 6020A	1	181491063901A	05/30/2018 08:30	Choon Y Tian	1
06039	Nickel	SW-846 6020A	1	181491063901A	05/30/2018 08:30	Choon Y Tian	1
06041	Selenium	SW-846 6020A	1	181491063901B	05/30/2018 08:30	Choon Y Tian	1
06042	Silver	SW-846 6020A	1	181491063901A	05/30/2018 08:30	Choon Y Tian	1
06045	Thallium	SW-846 6020A	1	181491063901A	05/30/2018 08:30	Choon Y Tian	1
06048	Vanadium	SW-846 6020A	1	181491063901A	05/30/2018 08:30	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	181510571301	06/01/2018 07:02	Damary Valentin	1
10636	ICP-WW/TL, 3010A (tot) - U4	SW-846 3010A	1	181491063601	05/30/2018 16:20	JoElla L Rice	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	181491063901	05/29/2018 21:00	Annamaria Kuhns	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	181510571301	05/31/2018 16:35	JoElla L Rice	1
00224	Chloride	EPA 300.0	1	18145987117A	05/26/2018 01:47	Clinton M Wilson	5
00368	Nitrate Nitrogen	EPA 300.0	1	18145987117A	05/26/2018 01:47	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	18145987117A	05/26/2018 01:47	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	18145987117A	05/26/2018 01:47	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	18150107103B	05/30/2018 14:29	Ashlynn M Cornelius	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-2011	1	18149003102A	05/30/2018 02:17	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-2011	1	18149003102A	05/30/2018 02:17	Jeremy L Bolf	1
13858	Total Suspended Solids	SM 2540 D-2011	1	18151385801A	05/31/2018 09:43	Amy L Hankins	1
00229	Sulfite	SM 4500-SO3 B-2011	1	18150022901A	05/30/2018 09:55	Michelle L Lalli	1

*=This limit was used in the evaluation of the final result

Sample Description: SW-MERR-301W-NS Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629863
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 13:00
SDG#: GOA18-06

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous		EPA 537 Version 1.1 Modified	ng/l	ng/l	ng/l	
14473	NEtFOSAA	2991-50-6	0.91 U	0.91	2.7	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.91 U	0.91	2.7	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonic Acid	375-73-5	0.72 J	0.27	0.91	1
14473	Perfluorobutanoic acid	375-22-4	1.8 U	1.8	5.4	1
14473	Perfluorodecanoic acid	335-76-2	0.91 U	0.91	1.8	1
14473	Perfluorododecanoic acid	307-55-1	0.27 U	0.27	0.91	1
14473	Perfluoroheptanoic acid	375-85-9	0.70 J	0.27	0.91	1
14473	Perfluorohexanesulfonic Acid	355-46-4	0.55 J	0.36	1.8	1
14473	Perfluorohexanoic acid	307-24-4	1.3 J	0.36	1.8	1
14473	Perfluorononanoic acid	375-95-1	0.36 U	0.36	1.8	1
14473	Perfluoro-Octanesulfonic Acid	1763-23-1	0.93 J	0.36	1.8	1
14473	Perfluorooctanoic acid	335-67-1	2.6	0.27	0.91	1
14473	Perfluoropentanoic acid	2706-90-3	1.8 U	1.8	5.4	1
14473	Perfluorotetradecanoic acid	376-06-7	0.27 U	0.27	0.91	1
14473	Perfluorotridecanoic acid	72629-94-8	0.27 U	0.27	0.91	1
14473	Perfluoroundecanoic acid	2058-94-8	0.36 U	0.36	1.8	1

The recovery for the method blank labeled compound(s) used as extraction standard(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and no target analytes were detected, the data is reported.

The LCS/LCSD labeled compound(s) used as extraction standard(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

The sample injection internal standard peak areas were outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC summary due to the matrix of the sample.

Metals		SW-846 6010C	mg/l	mg/l	mg/l	
01750	Calcium	7440-70-2	4.27	0.0600	0.400	1
01754	Iron	7439-89-6	0.300 J	0.0805	0.400	1
01757	Magnesium	7439-95-4	0.850	0.0374	0.200	1
07058	Manganese	7439-96-5	0.0310	0.0016	0.0100	1
01762	Potassium	7440-09-7	1.02	0.179	1.00	1
01767	Sodium	7440-23-5	16.7	0.321	2.00	1

*=This limit was used in the evaluation of the final result

Sample Description: SW-MERR-301W-NS Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629863
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 13:00
SDG#: GOA18-06

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Wet Chemistry EPA 300.0						
00224	Chloride	16887-00-6	25.4	1.0	2.0	5
00368	Nitrate Nitrogen	14797-55-8	0.35 J	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	Sulfate	14808-79-8	5.4	1.5	5.0	5
EPA 350.1						
12892	Ammonia Nitrogen	7664-41-7	0.16	0.050	0.10	1
SM 2320 B-2011						
12150	Total Alkalinity to pH 4.5	n.a.	8.4	1.7	5.0	1
12149	Bicarbonate Alkalinity	n.a.	8.4	1.7	5.0	1
SM 2540 D-2011						
13858	Total Suspended Solids	n.a.	1.19 J	1.00	3.00	1
SM 4500-SO3 B-2011						
00229	Sulfite	14265-45-3	1.5 U	1.5	5.0	1
The 40 CFR Part 136 requires that this analysis be performed immediately (within 15 minutes) upon sample collection. Because this was not possible, the result may not be used for reporting purposes.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	16 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18150011	06/04/2018 03:23	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18150011	05/30/2018 14:00	Anthony C Polaski	1
01750	Calcium	SW-846 6010C	1	181491063601	05/31/2018 12:30	Lisa J Cooke	1
01754	Iron	SW-846 6010C	1	181491063601	05/31/2018 12:30	Lisa J Cooke	1
01757	Magnesium	SW-846 6010C	1	181491063601	05/31/2018 12:30	Lisa J Cooke	1
07058	Manganese	SW-846 6010C	1	181491063601	05/31/2018 12:30	Lisa J Cooke	1
01762	Potassium	SW-846 6010C	1	181491063601	05/31/2018 12:30	Lisa J Cooke	1
01767	Sodium	SW-846 6010C	1	181491063601	05/31/2018 12:30	Lisa J Cooke	1
10636	ICP-WW/TL, 3010A (tot) - U4	SW-846 3010A	1	181491063601	05/30/2018 16:20	JoElla L Rice	1
00224	Chloride	EPA 300.0	1	18145987117A	05/26/2018 02:04	Clinton M Wilson	5
00368	Nitrate Nitrogen	EPA 300.0	1	18145987117A	05/26/2018 02:04	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	18145987117A	05/26/2018 02:04	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	18145987117A	05/26/2018 02:04	Clinton M Wilson	5

*=This limit was used in the evaluation of the final result

Sample Description: SW-MERR-301W-NS Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629863
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10

Collection Date/Time: 05/24/2018 13:00

SDG#: GOA18-06

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12892	Ammonia Nitrogen	EPA 350.1	1	18150107103B	05/30/2018 14:30	Ashlynn M Cornelius	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-2011	1	18149003103A	05/30/2018 05:05	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-2011	1	18149003103A	05/30/2018 05:05	Jeremy L Bolf	1
13858	Total Suspended Solids	SM 2540 D-2011	1	18151385801A	05/31/2018 09:43	Amy L Hankins	1
00229	Sulfite	SM 4500-SO3 B-2011	1	18150022901A	05/30/2018 09:55	Michelle L Lalli	1

*=This limit was used in the evaluation of the final result

Analysis Report

Sample Description: SW-MERR-302W-NS Grab Surface Water
SGPP/166-8623**Golder Associates**
ELLE Sample #: WW 9629864
ELLE Group #: 1948018
Matrix: Surface Water**Project Name:** SGPP-Merrimack NH**Submittal Date/Time:** 05/25/2018 10:10**Collection Date/Time:** 05/24/2018 13:45**SDG#:** GOA18-07

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous		EPA 537 Version 1.1 Modified	ng/l	ng/l	ng/l	
14473	NEtFOSAA	2991-50-6	0.90 U	0.90	2.7	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.90 U	0.90	2.7	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonic Acid	375-73-5	0.73 J	0.27	0.90	1
14473	Perfluorobutanoic acid	375-22-4	1.8 U	1.8	5.4	1
14473	Perfluorodecanoic acid	335-76-2	0.90 U	0.90	1.8	1
14473	Perfluorododecanoic acid	307-55-1	0.27 U	0.27	0.90	1
14473	Perfluoroheptanoic acid	375-85-9	1.0 U	0.27	0.90	1
14473	Perfluorohexanesulfonic Acid	355-46-4	0.55 J	0.36	1.8	1
14473	Perfluorohexanoic acid	307-24-4	1.8 J	0.36	1.8	1
14473	Perfluorononanoic acid	375-95-1	0.36 U	0.36	1.8	1
14473	Perfluoro-Octanesulfonic Acid	1763-23-1	1.2 J	0.36	1.8	1
14473	Perfluorooctanoic acid	335-67-1	4.7 U	0.27	0.90	1
14473	Perfluoropentanoic acid	2706-90-3	1.9 J	1.8	5.4	1
14473	Perfluorotetradecanoic acid	376-06-7	0.27 U	0.27	0.90	1
14473	Perfluorotridecanoic acid	72629-94-8	0.27 U	0.27	0.90	1
14473	Perfluoroundecanoic acid	2058-94-8	0.36 U	0.36	1.8	1

The recovery for the method blank labeled compound(s) used as extraction standard(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and no target analytes were detected, the data is reported.

The LCS/LCSD labeled compound(s) used as extraction standard(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

The sample injection internal standard peak areas were outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC summary due to the matrix of the sample.

Metals		SW-846 6010C	mg/l	mg/l	mg/l	
01750	Calcium	7440-70-2	4.21	0.0600	0.400	1
01754	Iron	7439-89-6	0.308 J	0.0805	0.400	1
01757	Magnesium	7439-95-4	0.838	0.0374	0.200	1
07058	Manganese	7439-96-5	0.0340	0.0016	0.0100	1
01762	Potassium	7440-09-7	1.07	0.179	1.00	1
01767	Sodium	7440-23-5	16.7	0.321	2.00	1

*=This limit was used in the evaluation of the final result

Sample Description: SW-MERR-302W-NS Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629864
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 13:45
SDG#: GOA18-07

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Wet Chemistry EPA 300.0						
00224	Chloride	16887-00-6	23.0	1.0	2.0	5
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	Sulfate	14808-79-8	4.5 J	1.5	5.0	5
EPA 350.1						
12892	Ammonia Nitrogen	7664-41-7	0.18	0.050	0.10	1
SM 2320 B-2011						
12150	Total Alkalinity to pH 4.5	n.a.	8.3	1.7	5.0	1
12149	Bicarbonate Alkalinity	n.a.	8.3	1.7	5.0	1
SM 2540 D-2011						
13858	Total Suspended Solids	n.a.	2.84 J	1.00	3.00	1
SM 4500-SO3 B-2011						
00229	Sulfite	14265-45-3	1.5 U	1.5	5.0	1
The 40 CFR Part 136 requires that this analysis be performed immediately (within 15 minutes) upon sample collection. Because this was not possible, the result may not be used for reporting purposes.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	16 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18150011	06/04/2018 03:37	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18150011	05/30/2018 14:00	Anthony C Polaski	1
01750	Calcium	SW-846 6010C	1	181491063601	05/31/2018 12:33	Lisa J Cooke	1
01754	Iron	SW-846 6010C	1	181491063601	05/31/2018 12:33	Lisa J Cooke	1
01757	Magnesium	SW-846 6010C	1	181491063601	05/31/2018 12:33	Lisa J Cooke	1
07058	Manganese	SW-846 6010C	1	181491063601	05/31/2018 12:33	Lisa J Cooke	1
01762	Potassium	SW-846 6010C	1	181491063601	05/31/2018 12:33	Lisa J Cooke	1
01767	Sodium	SW-846 6010C	1	181491063601	05/31/2018 12:33	Lisa J Cooke	1
10636	ICP-WW/TL, 3010A (tot) - U4	SW-846 3010A	1	181491063601	05/30/2018 16:20	JoElla L Rice	1
00224	Chloride	EPA 300.0	1	18145987117B	05/26/2018 03:12	Clinton M Wilson	5
00368	Nitrate Nitrogen	EPA 300.0	1	18145987117B	05/26/2018 03:12	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	18145987117B	05/26/2018 03:12	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	18145987117B	05/26/2018 03:12	Clinton M Wilson	5

*=This limit was used in the evaluation of the final result

Sample Description: SW-MERR-302W-NS Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629864
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10

Collection Date/Time: 05/24/2018 13:45

SDG#: GOA18-07

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12892	Ammonia Nitrogen	EPA 350.1	1	18150107103B	05/30/2018 14:32	Ashlynn M Cornelius	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-2011	1	18149003103A	05/30/2018 04:52	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-2011	1	18149003103A	05/30/2018 04:52	Jeremy L Bolf	1
13858	Total Suspended Solids	SM 2540 D-2011	1	18151385801A	05/31/2018 09:43	Amy L Hankins	1
00229	Sulfite	SM 4500-SO3 B-2011	1	18150022901A	05/30/2018 09:55	Michelle L Lalli	1

*=This limit was used in the evaluation of the final result

Sample Description: SW-MERR-302W-IC Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629865
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 14:00
SDG#: GOA18-08

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous		EPA 537 Version 1.1 Modified	ng/l	ng/l	ng/l	
14473	NEtFOSAA	2991-50-6	0.91 U	0.91	2.7	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.91 U	0.91	2.7	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonic Acid	375-73-5	0.76 J	0.27	0.91	1
14473	Perfluorobutanoic acid	375-22-4	1.8 U	1.8	5.5	1
14473	Perfluorodecanoic acid	335-76-2	0.91 U	0.91	1.8	1
14473	Perfluorododecanoic acid	307-55-1	0.27 U	0.27	0.91	1
14473	Perfluoroheptanoic acid	375-85-9	0.93	0.27	0.91	1
14473	Perfluorohexanesulfonic Acid	355-46-4	0.67 J	0.37	1.8	1
14473	Perfluorohexanoic acid	307-24-4	1.9	0.37	1.8	1
14473	Perfluorononanoic acid	375-95-1	0.37 U	0.37	1.8	1
14473	Perfluoro-Octanesulfonic Acid	1763-23-1	1.2 J	0.37	1.8	1
14473	Perfluorooctanoic acid	335-67-1	4.4	0.27	0.91	1
14473	Perfluoropentanoic acid	2706-90-3	2.0 J	1.8	5.5	1
14473	Perfluorotetradecanoic acid	376-06-7	0.27 U	0.27	0.91	1
14473	Perfluorotridecanoic acid	72629-94-8	0.27 U	0.27	0.91	1
14473	Perfluoroundecanoic acid	2058-94-8	0.37 U	0.37	1.8	1

The recovery for the method blank labeled compound(s) used as extraction standard(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and no target analytes were detected, the data is reported.

The LCS/LCSD labeled compound(s) used as extraction standard(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

The sample injection internal standard peak areas were outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC summary due to the matrix of the sample.

Metals		SW-846 6010C	mg/l	mg/l	mg/l	
01750	Calcium	7440-70-2	4.18	0.0600	0.400	1
01754	Iron	7439-89-6	0.293 J	0.0805	0.400	1
01757	Magnesium	7439-95-4	0.829	0.0374	0.200	1
07058	Manganese	7439-96-5	0.0311	0.0016	0.0100	1
01762	Potassium	7440-09-7	0.986 J	0.179	1.00	1
01767	Sodium	7440-23-5	16.6	0.321	2.00	1

*=This limit was used in the evaluation of the final result

Sample Description: SW-MERR-302W-IC Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629865
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 14:00
SDG#: GOA18-08

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Wet Chemistry EPA 300.0						
00224	Chloride	16887-00-6	24.3	1.0	2.0	5
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	Sulfate	14808-79-8	4.8 J	1.5	5.0	5
EPA 350.1						
12892	Ammonia Nitrogen	7664-41-7	0.18	0.050	0.10	1
SM 2320 B-2011						
12150	Total Alkalinity to pH 4.5	n.a.	8.4	1.7	5.0	1
12149	Bicarbonate Alkalinity	n.a.	8.4	1.7	5.0	1
SM 2540 D-2011						
13858	Total Suspended Solids	n.a.	1.19 J	1.00	3.00	1
SM 4500-SO3 B-2011						
00229	Sulfite	14265-45-3	1.5 U	1.5	5.0	1
The 40 CFR Part 136 requires that this analysis be performed immediately (within 15 minutes) upon sample collection. Because this was not possible, the result may not be used for reporting purposes.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	16 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18150011	06/04/2018 03:52	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18150011	05/30/2018 14:00	Anthony C Polaski	1
01750	Calcium	SW-846 6010C	1	181491063601	05/31/2018 12:37	Lisa J Cooke	1
01754	Iron	SW-846 6010C	1	181491063601	05/31/2018 12:37	Lisa J Cooke	1
01757	Magnesium	SW-846 6010C	1	181491063601	05/31/2018 12:37	Lisa J Cooke	1
07058	Manganese	SW-846 6010C	1	181491063601	05/31/2018 12:37	Lisa J Cooke	1
01762	Potassium	SW-846 6010C	1	181491063601	05/31/2018 12:37	Lisa J Cooke	1
01767	Sodium	SW-846 6010C	1	181491063601	05/31/2018 12:37	Lisa J Cooke	1
10636	ICP-WW/TL, 3010A (tot) - U4	SW-846 3010A	1	181491063601	05/30/2018 16:20	JoElla L Rice	1
00224	Chloride	EPA 300.0	1	18145987117B	05/26/2018 03:29	Clinton M Wilson	5
00368	Nitrate Nitrogen	EPA 300.0	1	18145987117B	05/26/2018 03:29	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	18145987117B	05/26/2018 03:29	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	18145987117B	05/26/2018 03:29	Clinton M Wilson	5

*=This limit was used in the evaluation of the final result

Sample Description: SW-MERR-302W-IC Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629865
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 14:00
SDG#: GOA18-08

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12892	Ammonia Nitrogen	EPA 350.1	1	18150107103B	05/30/2018 14:33	Ashlynn M Cornelius	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-2011	1	18149003102A	05/30/2018 00:21	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-2011	1	18149003102A	05/30/2018 00:21	Jeremy L Bolf	1
13858	Total Suspended Solids	SM 2540 D-2011	1	18151385801A	05/31/2018 09:43	Amy L Hankins	1
00229	Sulfite	SM 4500-SO3 B-2011	1	18150022901A	05/30/2018 09:55	Michelle L Lalli	1

*=This limit was used in the evaluation of the final result

Sample Description: SW-DB-101 Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629866
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 13:25
SDG#: GOA18-09

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous		EPA 537 Version 1.1 Modified	ng/l	ng/l	ng/l	
14473	NEtFOSAA	2991-50-6	0.91 U	0.91	2.7	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.91 U	0.91	2.7	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonic Acid	375-73-5	7.8	0.27	0.91	1
14473	Perfluorobutanoic acid	375-22-4	30	1.8	5.5	1
14473	Perfluorodecanoic acid	335-76-2	2.1	0.91	1.8	1
14473	Perfluorododecanoic acid	307-55-1	0.27 U	0.27	0.91	1
14473	Perfluoroheptanoic acid	375-85-9	90	2.7	9.1	10
14473	Perfluorohexanesulfonic Acid	355-46-4	11	0.36	1.8	1
14473	Perfluorohexanoic acid	307-24-4	160	3.6	18	10
14473	Perfluorononanoic acid	375-95-1	5.3	0.36	1.8	1
14473	Perfluoro-Octanesulfonic Acid	1763-23-1	31	0.36	1.8	1
14473	Perfluorooctanoic acid	335-67-1	630	2.7	9.1	10
14473	Perfluoropentanoic acid	2706-90-3	110	1.8	5.5	1
14473	Perfluorotetradecanoic acid	376-06-7	0.27 U	0.27	0.91	1
14473	Perfluorotridecanoic acid	72629-94-8	0.27 U	0.27	0.91	1
14473	Perfluoroundecanoic acid	2058-94-8	0.36 U	0.36	1.8	1

The recovery for the method blank labeled compound(s) used as extraction standard(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and no target analytes were detected, the data is reported.

The LCS/LCSD labeled compound(s) used as extraction standard(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

The sample injection internal standard peak areas were outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC summary due to the matrix of the sample.

Metals		SW-846 6010C	mg/l	mg/l	mg/l	
01750	Calcium	7440-70-2	12.8	0.0600	0.400	1
01754	Iron	7439-89-6	0.566	0.0805	0.400	1
01757	Magnesium	7439-95-4	2.26	0.0374	0.200	1
07058	Manganese	7439-96-5	0.129	0.0016	0.0100	1
01762	Potassium	7440-09-7	2.36	0.179	1.00	1
01767	Sodium	7440-23-5	71.1	0.321	2.00	1

*=This limit was used in the evaluation of the final result

Sample Description: SW-DB-101 Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629866
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 13:25
SDG#: GOA18-09

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Wet Chemistry EPA 300.0						
00224	Chloride	16887-00-6	122	10.0	20.0	50
00368	Nitrate Nitrogen	14797-55-8	0.91	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	Sulfate	14808-79-8	10.6	1.5	5.0	5
EPA 350.1						
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
SM 2320 B-2011						
12150	Total Alkalinity to pH 4.5	n.a.	12.4	1.7	5.0	1
12149	Bicarbonate Alkalinity	n.a.	12.4	1.7	5.0	1
SM 2540 D-2011						
13858	Total Suspended Solids	n.a.	12.7	3.00	9.00	1
SM 4500-SO3 B-2011						
00229	Sulfite	14265-45-3	1.5 U	1.5	5.0	1
The 40 CFR Part 136 requires that this analysis be performed immediately (within 15 minutes) upon sample collection. Because this was not possible, the result may not be used for reporting purposes.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	16 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18150011	06/04/2018 04:06	Devon M Whooley	1
14473	16 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18150011	06/07/2018 14:30	Devon M Whooley	10
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18150011	05/30/2018 14:00	Anthony C Polaski	1
01750	Calcium	SW-846 6010C	1	181491063601	05/31/2018 12:40	Lisa J Cooke	1
01754	Iron	SW-846 6010C	1	181491063601	05/31/2018 12:40	Lisa J Cooke	1
01757	Magnesium	SW-846 6010C	1	181491063601	05/31/2018 12:40	Lisa J Cooke	1
07058	Manganese	SW-846 6010C	1	181491063601	05/31/2018 12:40	Lisa J Cooke	1
01762	Potassium	SW-846 6010C	1	181491063601	05/31/2018 12:40	Lisa J Cooke	1
01767	Sodium	SW-846 6010C	1	181491063601	05/31/2018 12:40	Lisa J Cooke	1
10636	ICP-WW/TL, 3010A (tot) - U4	SW-846 3010A	1	181491063601	05/30/2018 16:20	JoElla L Rice	1
00224	Chloride	EPA 300.0	1	18145987117B	05/30/2018 07:04	Clinton M Wilson	50
00368	Nitrate Nitrogen	EPA 300.0	1	18145987117B	05/26/2018 03:46	Clinton M Wilson	5

*=This limit was used in the evaluation of the final result

Sample Description: SW-DB-101 Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629866
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 13:25
SDG#: GOA18-09

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01506	Nitrite Nitrogen	EPA 300.0	1	18145987117B	05/26/2018 03:46	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	18145987117B	05/26/2018 03:46	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	18150107103B	05/30/2018 14:35	Ashlynn M Cornelius	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-2011	1	18149003102A	05/30/2018 02:24	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-2011	1	18149003102A	05/30/2018 02:24	Jeremy L Bolf	1
13858	Total Suspended Solids	SM 2540 D-2011	1	18151385801A	05/31/2018 09:43	Amy L Hankins	1
00229	Sulfite	SM 4500-SO3 B-2011	1	18150022901A	05/30/2018 09:55	Michelle L Lalli	1

*=This limit was used in the evaluation of the final result

Sample Description: SW-DB-102 Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629867
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 13:25
SDG#: GOA18-10

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous		EPA 537 Version 1.1 Modified	ng/l	ng/l	ng/l	
14473	NEtFOSAA	2991-50-6	0.91 U	0.91	2.7	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.91 U	0.91	2.7	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonic Acid	375-73-5	2.0	0.27	0.91	1
14473	Perfluorobutanoic acid	375-22-4	5.3 J	1.8	5.5	1
14473	Perfluorodecanoic acid	335-76-2	0.91 U	0.91	1.8	1
14473	Perfluorododecanoic acid	307-55-1	0.27 U	0.27	0.91	1
14473	Perfluoroheptanoic acid	375-85-9	17	0.27	0.91	1
14473	Perfluorohexanesulfonic Acid	355-46-4	2.4	0.36	1.8	1
14473	Perfluorohexanoic acid	307-24-4	29	0.36	1.8	1
14473	Perfluorononanoic acid	375-95-1	0.74 J	0.36	1.8	1
14473	Perfluoro-Octanesulfonic Acid	1763-23-1	5.9	0.36	1.8	1
14473	Perfluorooctanoic acid	335-67-1	100	0.27	0.91	1
14473	Perfluoropentanoic acid	2706-90-3	22	1.8	5.5	1
14473	Perfluorotetradecanoic acid	376-06-7	6.5	0.27	0.91	1
14473	Perfluorotridecanoic acid	72629-94-8	0.27 U	0.27	0.91	1
14473	Perfluoroundecanoic acid	2058-94-8	0.36 U	0.36	1.8	1

The recovery for the method blank labeled compound(s) used as extraction standard(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and no target analytes were detected, the data is reported.

The LCS/LCSD labeled compound(s) used as extraction standard(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

The sample injection internal standard peak areas were outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC summary due to the matrix of the sample.

Metals		SW-846 6010C	mg/l	mg/l	mg/l	
01750	Calcium	7440-70-2	5.16	0.0600	0.400	1
01754	Iron	7439-89-6	1.75	0.0805	0.400	1
01757	Magnesium	7439-95-4	0.976	0.0374	0.200	1
07058	Manganese	7439-96-5	0.184	0.0016	0.0100	1
01762	Potassium	7440-09-7	1.26	0.179	1.00	1
01767	Sodium	7440-23-5	19.6	0.321	2.00	1

*=This limit was used in the evaluation of the final result

Sample Description: SW-DB-102 Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629867
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 13:25
SDG#: GOA18-10

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Wet Chemistry EPA 300.0						
00224	Chloride	16887-00-6	29.7	1.0	2.0	5
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	Sulfate	14808-79-8	4.9 J	1.5	5.0	5
EPA 350.1						
12892	Ammonia Nitrogen	7664-41-7	0.20	0.050	0.10	1
SM 2320 B-2011						
12150	Total Alkalinity to pH 4.5	n.a.	11.2	1.7	5.0	1
12149	Bicarbonate Alkalinity	n.a.	11.2	1.7	5.0	1
SM 2540 D-2011						
13858	Total Suspended Solids	n.a.	3.88	1.00	3.00	1
SM 4500-SO3 B-2011						
00229	Sulfite	14265-45-3	1.5 U	1.5	5.0	1
The 40 CFR Part 136 requires that this analysis be performed immediately (within 15 minutes) upon sample collection. Because this was not possible, the result may not be used for reporting purposes.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	16 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18150011	06/04/2018 04:21	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18150011	05/30/2018 14:00	Anthony C Polaski	1
01750	Calcium	SW-846 6010C	1	181491063601	05/31/2018 12:43	Lisa J Cooke	1
01754	Iron	SW-846 6010C	1	181491063601	05/31/2018 12:43	Lisa J Cooke	1
01757	Magnesium	SW-846 6010C	1	181491063601	05/31/2018 12:43	Lisa J Cooke	1
07058	Manganese	SW-846 6010C	1	181491063601	05/31/2018 12:43	Lisa J Cooke	1
01762	Potassium	SW-846 6010C	1	181491063601	05/31/2018 12:43	Lisa J Cooke	1
01767	Sodium	SW-846 6010C	1	181491063601	05/31/2018 12:43	Lisa J Cooke	1
10636	ICP-WW/TL, 3010A (tot) - U4	SW-846 3010A	1	181491063601	05/30/2018 16:20	JoElla L Rice	1
00224	Chloride	EPA 300.0	1	18145987117B	05/26/2018 04:38	Clinton M Wilson	5
00368	Nitrate Nitrogen	EPA 300.0	1	18145987117B	05/26/2018 04:38	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	18145987117B	05/26/2018 04:38	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	18145987117B	05/26/2018 04:38	Clinton M Wilson	5

*=This limit was used in the evaluation of the final result

Sample Description: SW-DB-102 Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629867
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 13:25
SDG#: GOA18-10

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12892	Ammonia Nitrogen	EPA 350.1	1	18150107103B	05/30/2018 14:36	Ashlynn M Cornelius	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-2011	1	18149003101A	05/29/2018 23:40	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-2011	1	18149003101A	05/29/2018 23:40	Jeremy L Bolf	1
13858	Total Suspended Solids	SM 2540 D-2011	1	18151385801A	05/31/2018 09:43	Amy L Hankins	1
00229	Sulfite	SM 4500-SO3 B-2011	1	18150022901A	05/30/2018 09:55	Michelle L Lalli	1

*=This limit was used in the evaluation of the final result

Analysis Report

Sample Description: SW-MERR-101W-NS Grab Surface Water
SGPP/166-8623**Golder Associates**
ELLE Sample #: WW 9629868
ELLE Group #: 1948018
Matrix: Surface Water**Project Name:** SGPP-Merrimack NH**Submission Date/Time:** 05/25/2018 10:10**Collection Date/Time:** 05/24/2018 08:55**SDG#:** GOA18-11

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous EPA 537 Version 1.1 Modified						
			ng/l	ng/l	ng/l	
14473	10:2-fluorotelomersulfonate	120226-60-0	2.7 U	2.7	8.2	1
14473	4:2 fluorotelomersulfonate	757124-72-4	0.92 U	0.92	2.7	1
14473	6:2 fluorotelomersulfonate	27619-97-2	8.7	0.92	1.8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	1.8 U	1.8	5.5	1
14473	NEtFOSAA	2991-50-6	0.92 U	0.92	2.7	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NEtPFOSA	4151-50-2	2.7 U	2.7	8.2	1
	NEtPFOSA is the acronym for N-ethylperfluoro-1-octanesulfonamide					
14473	NEtPFOSAE	1691-99-2	0.92 U	0.92	2.7	1
	NEtPFOSAE is the acronym for 2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol					
14473	NMeFOSAA	2355-31-9	0.92 U	0.92	2.7	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMePFOSA	31506-32-8	2.7 U	2.7	8.2	1
	NMePFOSA is the acronym for N-methylperfluoro-1-octanesulfonamide					
14473	NMePFOSAE	24448-09-7	0.92 U	0.92	2.7	1
	NMePFOSAE is the acronym for 2-(N-methylperfluoro-1-octanesulfonamido)-ethanol					
14473	Perfluorobutanesulfonic Acid	375-73-5	0.88 J	0.27	0.92	1
14473	Perfluorobutanoic acid	375-22-4	1.8 U	1.8	5.5	1
14473	Perfluorodecanesulfonate	335-77-3	0.55 U	0.55	1.8	1
14473	Perfluorodecanoic acid	335-76-2	0.92 U	0.92	1.8	1
14473	Perfluorododecanesulfonate	79780-39-5	0.27 U	0.27	0.92	1
14473	Perfluorododecanoic acid	307-55-1	0.27 U	0.27	0.92	1
14473	Perfluoroheptanesulfonate	375-92-8	0.37 U	0.37	1.8	1
14473	Perfluoroheptanoic acid	375-85-9	1.5	0.27	0.92	1
14473	Perfluorohexadecanoic acid	67905-19-5	0.27 U	0.27	0.92	1
14473	Perfluorohexanesulfonic Acid	355-46-4	0.68 J	0.37	1.8	1
14473	Perfluorohexanoic acid	307-24-4	2.5	0.37	1.8	1
14473	Perfluorononanesulfonate	474511-07-4	0.55 U	0.55	1.8	1
14473	Perfluorononanoic acid	375-95-1	0.62 J	0.37	1.8	1
14473	Perfluorooctadecanoic acid	16517-11-6	0.27 U	0.27	0.92	1
14473	Perfluorooctanesulfonamide	754-91-6	0.92 U	0.92	2.7	1
14473	Perfluoro-Octanesulfonic Acid	1763-23-1	1.3 J	0.37	1.8	1
14473	Perfluorooctanoic acid	335-67-1	7.2	0.27	0.92	1
14473	Perfluoropentanesulfonate	2706-91-4	0.37 U	0.37	1.8	1
14473	Perfluoropentanoic acid	2706-90-3	2.0 J	1.8	5.5	1
14473	Perfluorotetradecanoic acid	376-06-7	0.27 U	0.27	0.92	1
14473	Perfluorotridecanoic acid	72629-94-8	0.27 U	0.27	0.92	1
14473	Perfluoroundecanoic acid	2058-94-8	0.37 U	0.37	1.8	1

The recovery for the sample injection standard and the labeled compound used as extraction standards is outside the QC acceptance limits as noted

*=This limit was used in the evaluation of the final result

Sample Description: SW-MERR-101W-NS Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629868
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 08:55
SDG#: GOA18-11

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
on the QC Summary. The following corrective action was taken: The sample was reextracted outside the holding time. The data is reported from the in-hold extraction. Both sets of data are included in the data package.						
LC/MS/MS Miscellaneous		SW-846 8321B	ng/l	ng/l	ng/l	
14654	HFPODA	13252-13-6	0.28 U	0.28	0.95	1
	HFPODA is the acronym for 2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid					
14654	NaDONA	958445-44-8	0.28 U	0.28	0.95	1
	NaDONA is the acronym for Sodium dodecafluoro-3H-4,8-dioxanonanoate					
Metals		SW-846 6010C	mg/l	mg/l	mg/l	
01743	Aluminum	7429-90-5	0.0894 U	0.0894	0.400	1
01750	Calcium	7440-70-2	4.14	0.0600	0.400	1
01754	Iron	7439-89-6	0.320 J	0.0805	0.400	1
01757	Magnesium	7439-95-4	0.822	0.0374	0.200	1
07058	Manganese	7439-96-5	0.0381	0.0016	0.0100	1
01762	Potassium	7440-09-7	1.01	0.179	1.00	1
01767	Sodium	7440-23-5	16.1	0.321	2.00	1
07072	Zinc	7440-66-6	0.0065 U	0.0065	0.0400	1
		SW-846 6020A	mg/l	mg/l	mg/l	
06024	Antimony	7440-36-0	0.00045 U	0.00045	0.0020	1
06025	Arsenic	7440-38-2	0.00072 U	0.00072	0.0040	1
06026	Barium	7440-39-3	0.0086	0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000071 U	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015 U	0.00015	0.0010	1
06031	Chromium	7440-47-3	0.00087 U	0.00087	0.0040	1
06032	Cobalt	7440-48-4	0.00016 U	0.00016	0.0010	1
06033	Copper	7440-50-8	0.00069 J	0.00054	0.0040	1
06035	Lead	7439-92-1	0.00022 J	0.00011	0.0020	1
06039	Nickel	7440-02-0	0.0010 U	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	Thallium	7440-28-0	0.00012 U	0.00012	0.0010	1
06048	Vanadium	7440-62-2	0.00029 J	0.00021	0.0010	1
		SW-846 7470A	mg/l	mg/l	mg/l	
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry		EPA 300.0	mg/l	mg/l	mg/l	
00224	Chloride	16887-00-6	23.9	1.0	2.0	5
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	Sulfate	14808-79-8	4.7 J	1.5	5.0	5

*=This limit was used in the evaluation of the final result

Sample Description: SW-MERR-101W-NS Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629868
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 08:55
SDG#: GOA18-11

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Wet Chemistry						
12892	Ammonia Nitrogen	7664-41-7	0.15	mg/l 0.050	mg/l 0.10	1
SM 2320 B-2011						
12150	Total Alkalinity to pH 4.5	n.a.	8.6	mg/l as CaCO3 1.7	mg/l as CaCO3 5.0	1
12149	Bicarbonate Alkalinity	n.a.	8.6	mg/l as CaCO3 1.7	mg/l as CaCO3 5.0	1
SM 2540 D-2011						
13858	Total Suspended Solids	n.a.	1.64 J	mg/l 1.00	mg/l 3.00	1
SM 4500-SO3 B-2011						
00229	Sulfite	14265-45-3	1.5 U	mg/l 1.5	mg/l 5.0	1
The 40 CFR Part 136 requires that this analysis be performed immediately (within 15 minutes) upon sample collection. Because this was not possible, the result may not be used for reporting purposes.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	32 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18149021	06/10/2018 11:54	Devon M Whooley	1
14654	HFPODA, NaDONA	SW-846 8321B	1	18150005	05/31/2018 15:32	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18149021	05/29/2018 14:20	Danielle D McCully	1
14659	PFECA Water Prep	SW-846 8321B	1	18150005	05/30/2018 07:15	Pamela Rothharpt	1
01743	Aluminum	SW-846 6010C	1	181491063601	05/31/2018 12:47	Lisa J Cooke	1
01750	Calcium	SW-846 6010C	1	181491063601	05/31/2018 12:47	Lisa J Cooke	1
01754	Iron	SW-846 6010C	1	181491063601	05/31/2018 12:47	Lisa J Cooke	1
01757	Magnesium	SW-846 6010C	1	181491063601	05/31/2018 12:47	Lisa J Cooke	1
07058	Manganese	SW-846 6010C	1	181491063601	05/31/2018 12:47	Lisa J Cooke	1
01762	Potassium	SW-846 6010C	1	181491063601	05/31/2018 12:47	Lisa J Cooke	1
01767	Sodium	SW-846 6010C	1	181491063601	05/31/2018 12:47	Lisa J Cooke	1
07072	Zinc	SW-846 6010C	1	181491063601	05/31/2018 12:47	Lisa J Cooke	1
06024	Antimony	SW-846 6020A	1	181491063901A	05/30/2018 08:33	Choon Y Tian	1
06025	Arsenic	SW-846 6020A	1	181491063901A	05/30/2018 08:33	Choon Y Tian	1
06026	Barium	SW-846 6020A	1	181491063901D	05/30/2018 08:33	Choon Y Tian	1
06027	Beryllium	SW-846 6020A	1	181491063901A	05/30/2018 08:33	Choon Y Tian	1
06028	Cadmium	SW-846 6020A	1	181491063901A	05/30/2018 08:33	Choon Y Tian	1
06031	Chromium	SW-846 6020A	1	181491063901A	05/30/2018 08:33	Choon Y Tian	1
06032	Cobalt	SW-846 6020A	1	181491063901A	05/30/2018 08:33	Choon Y Tian	1
06033	Copper	SW-846 6020A	1	181491063901A	05/30/2018 08:33	Choon Y Tian	1

*=This limit was used in the evaluation of the final result

Sample Description: SW-MERR-101W-NS Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629868
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submission Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 08:55
SDG#: GOA18-11

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06035	Lead	SW-846 6020A	1	181491063901A	05/30/2018 08:33	Choon Y Tian	1
06039	Nickel	SW-846 6020A	1	181491063901A	05/30/2018 08:33	Choon Y Tian	1
06041	Selenium	SW-846 6020A	1	181491063901B	05/30/2018 08:33	Choon Y Tian	1
06042	Silver	SW-846 6020A	1	181491063901A	05/30/2018 08:33	Choon Y Tian	1
06045	Thallium	SW-846 6020A	1	181491063901A	05/30/2018 08:33	Choon Y Tian	1
06048	Vanadium	SW-846 6020A	1	181491063901A	05/30/2018 08:33	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	181510571301	06/01/2018 07:14	Damary Valentin	1
10636	ICP-WW/TL, 3010A (tot) - U4	SW-846 3010A	1	181491063601	05/30/2018 16:20	JoElla L Rice	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	181491063901	05/29/2018 21:00	Annamaria Kuhns	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	181510571301	05/31/2018 16:35	JoElla L Rice	1
00224	Chloride	EPA 300.0	1	18145987117B	05/26/2018 04:55	Clinton M Wilson	5
00368	Nitrate Nitrogen	EPA 300.0	1	18145987117B	05/26/2018 04:55	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	18145987117B	05/26/2018 04:55	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	18145987117B	05/26/2018 04:55	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	18150107103B	05/30/2018 14:38	Ashlynn M Cornelius	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-2011	1	18149003102A	05/30/2018 00:55	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-2011	1	18149003102A	05/30/2018 00:55	Jeremy L Bolf	1
13858	Total Suspended Solids	SM 2540 D-2011	1	18151385801A	05/31/2018 09:43	Amy L Hankins	1
00229	Sulfite	SM 4500-SO3 B-2011	1	18150022901A	05/30/2018 09:55	Michelle L Lalli	1

*=This limit was used in the evaluation of the final result

Sample Description: SW-MERR-202W-NS Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629869
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 09:50
SDG#: GOA18-12

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous		EPA 537 Version 1.1 Modified	ng/l	ng/l	ng/l	
14473	NEtFOSAA	2991-50-6	0.90 U	0.90	2.7	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.90 U	0.90	2.7	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonic Acid	375-73-5	0.70 J	0.27	0.90	1
14473	Perfluorobutanoic acid	375-22-4	1.8 U	1.8	5.4	1
14473	Perfluorodecanoic acid	335-76-2	0.90 U	0.90	1.8	1
14473	Perfluorododecanoic acid	307-55-1	0.27 U	0.27	0.90	1
14473	Perfluoroheptanoic acid	375-85-9	0.68 J	0.27	0.90	1
14473	Perfluorohexanesulfonic Acid	355-46-4	0.54 J	0.36	1.8	1
14473	Perfluorohexanoic acid	307-24-4	1.2 J	0.36	1.8	1
14473	Perfluorononanoic acid	375-95-1	0.36 U	0.36	1.8	1
14473	Perfluoro-Octanesulfonic Acid	1763-23-1	1.0 J	0.36	1.8	1
14473	Perfluorooctanoic acid	335-67-1	2.5	0.27	0.90	1
14473	Perfluoropentanoic acid	2706-90-3	1.8 U	1.8	5.4	1
14473	Perfluorotetradecanoic acid	376-06-7	0.27 U	0.27	0.90	1
14473	Perfluorotridecanoic acid	72629-94-8	0.27 U	0.27	0.90	1
14473	Perfluoroundecanoic acid	2058-94-8	0.36 U	0.36	1.8	1

The recovery for the method blank labeled compound(s) used as extraction standard(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and no target analytes were detected, the data is reported.

The LCS/LCSD labeled compound(s) used as extraction standard(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

The sample injection internal standard peak areas were outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC summary due to the matrix of the sample.

Metals		SW-846 6010C	mg/l	mg/l	mg/l	
01750	Calcium	7440-70-2	4.11	0.0600	0.400	1
01754	Iron	7439-89-6	0.287 J	0.0805	0.400	1
01757	Magnesium	7439-95-4	0.830	0.0374	0.200	1
07058	Manganese	7439-96-5	0.0304	0.0016	0.0100	1
01762	Potassium	7440-09-7	0.972 J	0.179	1.00	1
01767	Sodium	7440-23-5	16.0	0.321	2.00	1

*=This limit was used in the evaluation of the final result

Sample Description: SW-MERR-202W-NS Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629869
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 09:50
SDG#: GOA18-12

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Wet Chemistry EPA 300.0						
00224	Chloride	16887-00-6	25.0	1.0	2.0	5
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	Sulfate	14808-79-8	4.8 J	1.5	5.0	5
EPA 350.1						
12892	Ammonia Nitrogen	7664-41-7	0.14	0.050	0.10	1
SM 2320 B-2011						
12150	Total Alkalinity to pH 4.5	n.a.	8.6	1.7	5.0	1
12149	Bicarbonate Alkalinity	n.a.	8.6	1.7	5.0	1
SM 2540 D-2011						
13858	Total Suspended Solids	n.a.	1.04 J	1.00	3.00	1
SM 4500-SO3 B-2011						
00229	Sulfite	14265-45-3	1.5 U	1.5	5.0	1
The 40 CFR Part 136 requires that this analysis be performed immediately (within 15 minutes) upon sample collection. Because this was not possible, the result may not be used for reporting purposes.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	16 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18150011	06/04/2018 04:50	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18150011	05/30/2018 14:00	Anthony C Polaski	1
01750	Calcium	SW-846 6010C	1	181491063601	05/31/2018 12:50	Lisa J Cooke	1
01754	Iron	SW-846 6010C	1	181491063601	05/31/2018 12:50	Lisa J Cooke	1
01757	Magnesium	SW-846 6010C	1	181491063601	05/31/2018 12:50	Lisa J Cooke	1
07058	Manganese	SW-846 6010C	1	181491063601	05/31/2018 12:50	Lisa J Cooke	1
01762	Potassium	SW-846 6010C	1	181491063601	05/31/2018 12:50	Lisa J Cooke	1
01767	Sodium	SW-846 6010C	1	181491063601	05/31/2018 12:50	Lisa J Cooke	1
10636	ICP-WW/TL, 3010A (tot) - U4	SW-846 3010A	1	181491063601	05/30/2018 16:20	JoElla L Rice	1
00224	Chloride	EPA 300.0	1	18145987117B	05/26/2018 05:12	Clinton M Wilson	5
00368	Nitrate Nitrogen	EPA 300.0	1	18145987117B	05/26/2018 05:12	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	18145987117B	05/26/2018 05:12	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	18145987117B	05/26/2018 05:12	Clinton M Wilson	5

*=This limit was used in the evaluation of the final result

Sample Description: SW-MERR-202W-NS Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629869
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 09:50
SDG#: GOA18-12

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12892	Ammonia Nitrogen	EPA 350.1	1	18150107103B	05/30/2018 14:39	Ashlynn M Cornelius	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-2011	1	18149003102A	05/30/2018 01:02	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-2011	1	18149003102A	05/30/2018 01:02	Jeremy L Bolf	1
13858	Total Suspended Solids	SM 2540 D-2011	1	18151385801A	05/31/2018 09:43	Amy L Hankins	1
00229	Sulfite	SM 4500-SO3 B-2011	1	18150022901A	05/30/2018 09:55	Michelle L Lalli	1

*=This limit was used in the evaluation of the final result

Sample Description: SW-MERR-202W-IC Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629870
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 10:00
SDG#: GOA18-13

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous		EPA 537 Version 1.1 Modified	ng/l	ng/l	ng/l	
14473	NEtFOSAA	2991-50-6	0.91 U	0.91	2.7	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.91 U	0.91	2.7	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonic Acid	375-73-5	0.68 J	0.27	0.91	1
14473	Perfluorobutanoic acid	375-22-4	1.8 U	1.8	5.5	1
14473	Perfluorodecanoic acid	335-76-2	0.91 U	0.91	1.8	1
14473	Perfluorododecanoic acid	307-55-1	0.27 U	0.27	0.91	1
14473	Perfluoroheptanoic acid	375-85-9	0.72 J	0.27	0.91	1
14473	Perfluorohexanesulfonic Acid	355-46-4	0.53 J	0.36	1.8	1
14473	Perfluorohexanoic acid	307-24-4	1.2 J	0.36	1.8	1
14473	Perfluorononanoic acid	375-95-1	0.36 U	0.36	1.8	1
14473	Perfluoro-Octanesulfonic Acid	1763-23-1	2.3	0.36	1.8	1
14473	Perfluorooctanoic acid	335-67-1	2.5	0.27	0.91	1
14473	Perfluoropentanoic acid	2706-90-3	1.8 U	1.8	5.5	1
14473	Perfluorotetradecanoic acid	376-06-7	0.27 U	0.27	0.91	1
14473	Perfluorotridecanoic acid	72629-94-8	0.27 U	0.27	0.91	1
14473	Perfluoroundecanoic acid	2058-94-8	0.36 U	0.36	1.8	1

The recovery for the method blank labeled compound(s) used as extraction standard(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and no target analytes were detected, the data is reported.

The LCS/LCSD labeled compound(s) used as extraction standard(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

The sample injection internal standard peak areas were outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC summary due to the matrix of the sample.

Metals		SW-846 6010C	mg/l	mg/l	mg/l	
01750	Calcium	7440-70-2	4.24	0.0600	0.400	1
01754	Iron	7439-89-6	0.290 J	0.0805	0.400	1
01757	Magnesium	7439-95-4	0.849	0.0374	0.200	1
07058	Manganese	7439-96-5	0.0311	0.0016	0.0100	1
01762	Potassium	7440-09-7	1.08	0.179	1.00	1
01767	Sodium	7440-23-5	16.5	0.321	2.00	1

*=This limit was used in the evaluation of the final result

Sample Description: SW-MERR-202W-IC Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629870
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 10:00
SDG#: GOA18-13

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Wet Chemistry EPA 300.0						
00224	Chloride	16887-00-6	21.6	1.0	2.0	5
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	Sulfate	14808-79-8	4.4 J	1.5	5.0	5
EPA 350.1						
12892	Ammonia Nitrogen	7664-41-7	0.21	0.050	0.10	1
SM 2320 B-2011						
12150	Total Alkalinity to pH 4.5	n.a.	7.8	1.7	5.0	1
12149	Bicarbonate Alkalinity	n.a.	7.8	1.7	5.0	1
SM 2540 D-2011						
13858	Total Suspended Solids	n.a.	1.19 J	1.00	3.00	1
SM 4500-SO3 B-2011						
00229	Sulfite	14265-45-3	1.5 U	1.5	5.0	1
The 40 CFR Part 136 requires that this analysis be performed immediately (within 15 minutes) upon sample collection. Because this was not possible, the result may not be used for reporting purposes.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	16 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18150011	06/04/2018 05:04	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18150011	05/30/2018 14:00	Anthony C Polaski	1
01750	Calcium	SW-846 6010C	1	181491063601	05/31/2018 12:54	Lisa J Cooke	1
01754	Iron	SW-846 6010C	1	181491063601	05/31/2018 12:54	Lisa J Cooke	1
01757	Magnesium	SW-846 6010C	1	181491063601	05/31/2018 12:54	Lisa J Cooke	1
07058	Manganese	SW-846 6010C	1	181491063601	05/31/2018 12:54	Lisa J Cooke	1
01762	Potassium	SW-846 6010C	1	181491063601	05/31/2018 12:54	Lisa J Cooke	1
01767	Sodium	SW-846 6010C	1	181491063601	05/31/2018 12:54	Lisa J Cooke	1
10636	ICP-WW/TL, 3010A (tot) - U4	SW-846 3010A	1	181491063601	05/30/2018 16:20	JoElla L Rice	1
00224	Chloride	EPA 300.0	1	18145987117B	05/26/2018 05:29	Clinton M Wilson	5
00368	Nitrate Nitrogen	EPA 300.0	1	18145987117B	05/26/2018 05:29	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	18145987117B	05/26/2018 05:29	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	18145987117B	05/26/2018 05:29	Clinton M Wilson	5

*=This limit was used in the evaluation of the final result

Sample Description: SW-MERR-202W-IC Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629870
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10

Collection Date/Time: 05/24/2018 10:00

SDG#: GOA18-13

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12892	Ammonia Nitrogen	EPA 350.1	1	18151107101A	05/31/2018 11:14	Ashlynn M Cornelius	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-2011	1	18149003102A	05/30/2018 01:44	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-2011	1	18149003102A	05/30/2018 01:44	Jeremy L Bolf	1
13858	Total Suspended Solids	SM 2540 D-2011	1	18151385801A	05/31/2018 09:43	Amy L Hankins	1
00229	Sulfite	SM 4500-SO3 B-2011	1	18150022901A	05/30/2018 09:55	Michelle L Lalli	1

*=This limit was used in the evaluation of the final result

Sample Description: SW-MERR-303W-NS Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629871
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 14:10
SDG#: GOA18-14

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous		EPA 537 Version 1.1 Modified	ng/l	ng/l	ng/l	
14473	NEtFOSAA	2991-50-6	0.91 U	0.91	2.7	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.91 U	0.91	2.7	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonic Acid	375-73-5	0.70 J	0.27	0.91	1
14473	Perfluorobutanoic acid	375-22-4	1.8 U	1.8	5.5	1
14473	Perfluorodecanoic acid	335-76-2	0.91 U	0.91	1.8	1
14473	Perfluorododecanoic acid	307-55-1	0.27 U	0.27	0.91	1
14473	Perfluoroheptanoic acid	375-85-9	0.87 J	0.27	0.91	1
14473	Perfluorohexanesulfonic Acid	355-46-4	0.57 J	0.37	1.8	1
14473	Perfluorohexanoic acid	307-24-4	1.7 J	0.37	1.8	1
14473	Perfluorononanoic acid	375-95-1	0.37 U	0.37	1.8	1
14473	Perfluoro-Octanesulfonic Acid	1763-23-1	1.2 J	0.37	1.8	1
14473	Perfluorooctanoic acid	335-67-1	4.3	0.27	0.91	1
14473	Perfluoropentanoic acid	2706-90-3	2.0 J	1.8	5.5	1
14473	Perfluorotetradecanoic acid	376-06-7	0.27 U	0.27	0.91	1
14473	Perfluorotridecanoic acid	72629-94-8	0.27 U	0.27	0.91	1
14473	Perfluoroundecanoic acid	2058-94-8	0.37 U	0.37	1.8	1

The recovery for the method blank labeled compound(s) used as extraction standard(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and no target analytes were detected, the data is reported.

The LCS/LCSD labeled compound(s) used as extraction standard(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

The sample injection internal standard peak areas were outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC summary due to the matrix of the sample.

Metals		SW-846 6010C	mg/l	mg/l	mg/l	
01750	Calcium	7440-70-2	4.32	0.0600	0.400	1
01754	Iron	7439-89-6	0.301 J	0.0805	0.400	1
01757	Magnesium	7439-95-4	0.863	0.0374	0.200	1
07058	Manganese	7439-96-5	0.0308	0.0016	0.0100	1
01762	Potassium	7440-09-7	1.06	0.179	1.00	1
01767	Sodium	7440-23-5	17.3	0.321	2.00	1

*=This limit was used in the evaluation of the final result

Sample Description: SW-MERR-303W-NS Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629871
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 14:10
SDG#: GOA18-14

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Wet Chemistry EPA 300.0						
00224	Chloride	16887-00-6	24.8	1.0	2.0	5
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	Sulfate	14808-79-8	4.8 J	1.5	5.0	5
EPA 350.1						
12892	Ammonia Nitrogen	7664-41-7	0.24	0.050	0.10	1
SM 2320 B-2011						
12150	Total Alkalinity to pH 4.5	n.a.	8.7	1.7	5.0	1
12149	Bicarbonate Alkalinity	n.a.	8.7	1.7	5.0	1
SM 2540 D-2011						
13858	Total Suspended Solids	n.a.	1.04 J	1.00	3.00	1
SM 4500-SO3 B-2011						
00229	Sulfite	14265-45-3	1.5 U	1.5	5.0	1
The 40 CFR Part 136 requires that this analysis be performed immediately (within 15 minutes) upon sample collection. Because this was not possible, the result may not be used for reporting purposes.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	16 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18150011	06/04/2018 05:19	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18150011	05/30/2018 14:00	Anthony C Polaski	1
01750	Calcium	SW-846 6010C	1	181491063601	05/31/2018 12:57	Lisa J Cooke	1
01754	Iron	SW-846 6010C	1	181491063601	05/31/2018 12:57	Lisa J Cooke	1
01757	Magnesium	SW-846 6010C	1	181491063601	05/31/2018 12:57	Lisa J Cooke	1
07058	Manganese	SW-846 6010C	1	181491063601	05/31/2018 12:57	Lisa J Cooke	1
01762	Potassium	SW-846 6010C	1	181491063601	05/31/2018 12:57	Lisa J Cooke	1
01767	Sodium	SW-846 6010C	1	181491063601	05/31/2018 12:57	Lisa J Cooke	1
10636	ICP-WW/TL, 3010A (tot) - U4	SW-846 3010A	1	181491063601	05/30/2018 16:20	JoElla L Rice	1
00224	Chloride	EPA 300.0	1	18145987117B	05/26/2018 05:46	Clinton M Wilson	5
00368	Nitrate Nitrogen	EPA 300.0	1	18145987117B	05/26/2018 05:46	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	18145987117B	05/26/2018 05:46	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	18145987117B	05/26/2018 05:46	Clinton M Wilson	5

*=This limit was used in the evaluation of the final result

Sample Description: SW-MERR-303W-NS Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629871
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 14:10
SDG#: GOA18-14

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12892	Ammonia Nitrogen	EPA 350.1	1	18151107101A	05/31/2018 11:19	Ashlynn M Cornelius	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-2011	1	18149003102A	05/30/2018 01:21	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-2011	1	18149003102A	05/30/2018 01:21	Jeremy L Bolf	1
13858	Total Suspended Solids	SM 2540 D-2011	1	18151385801A	05/31/2018 09:43	Amy L Hankins	1
00229	Sulfite	SM 4500-SO3 B-2011	1	18150022901A	05/30/2018 09:55	Michelle L Lalli	1

*=This limit was used in the evaluation of the final result

Sample Description: SW-MERR-401W-NS Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629872
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 13:00
SDG#: GOA18-15

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous		EPA 537 Version 1.1 Modified	ng/l	ng/l	ng/l	
14473	NEtFOSAA	2991-50-6	0.91 U	0.91	2.7	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.91 U	0.91	2.7	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonic Acid	375-73-5	0.74 J	0.27	0.91	1
14473	Perfluorobutanoic acid	375-22-4	1.8 U	1.8	5.5	1
14473	Perfluorodecanoic acid	335-76-2	0.91 U	0.91	1.8	1
14473	Perfluorododecanoic acid	307-55-1	0.27 U	0.27	0.91	1
14473	Perfluoroheptanoic acid	375-85-9	0.98	0.27	0.91	1
14473	Perfluorohexanesulfonic Acid	355-46-4	0.64 J	0.37	1.8	1
14473	Perfluorohexanoic acid	307-24-4	1.7 J	0.37	1.8	1
14473	Perfluorononanoic acid	375-95-1	0.37 U	0.37	1.8	1
14473	Perfluoro-Octanesulfonic Acid	1763-23-1	1.3 J	0.37	1.8	1
14473	Perfluorooctanoic acid	335-67-1	5.0	0.27	0.91	1
14473	Perfluoropentanoic acid	2706-90-3	2.1 J	1.8	5.5	1
14473	Perfluorotetradecanoic acid	376-06-7	0.27 U	0.27	0.91	1
14473	Perfluorotridecanoic acid	72629-94-8	0.27 U	0.27	0.91	1
14473	Perfluoroundecanoic acid	2058-94-8	0.37 U	0.37	1.8	1

The recovery for the method blank labeled compound(s) used as extraction standard(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and no target analytes were detected, the data is reported.

The LCS/LCSD labeled compound(s) used as extraction standard(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

The sample injection internal standard peak areas were outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC summary due to the matrix of the sample.

Metals	SW-846 6010C	mg/l	mg/l	mg/l	
01750 Calcium	7440-70-2	4.12	0.0600	0.400	1
01754 Iron	7439-89-6	0.347 J	0.0805	0.400	1
01757 Magnesium	7439-95-4	0.826	0.0374	0.200	1
07058 Manganese	7439-96-5	0.0365	0.0016	0.0100	1
01762 Potassium	7440-09-7	1.00	0.179	1.00	1
01767 Sodium	7440-23-5	16.3	0.321	2.00	1

*=This limit was used in the evaluation of the final result

Sample Description: SW-MERR-401W-NS Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629872
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 13:00
SDG#: GOA18-15

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Wet Chemistry						
	EPA 300.0		mg/l	mg/l	mg/l	
00224	Chloride	16887-00-6	25.0	1.0	2.0	5
00368	Nitrate Nitrogen	14797-55-8	0.36 J	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	Sulfate	14808-79-8	4.8 J	1.5	5.0	5
EPA 350.1						
	mg/l		mg/l	mg/l	mg/l	
12892	Ammonia Nitrogen	7664-41-7	0.22	0.050	0.10	1
SM 2320 B-2011						
	mg/l as CaCO3		mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	
12150	Total Alkalinity to pH 4.5	n.a.	8.4	1.7	5.0	1
12149	Bicarbonate Alkalinity	n.a.	8.4	1.7	5.0	1
SM 2540 D-2011						
	mg/l		mg/l	mg/l	mg/l	
13858	Total Suspended Solids	n.a.	1.19 J	1.00	3.00	1
SM 4500-SO3 B-2011						
	mg/l		mg/l	mg/l	mg/l	
00229	Sulfite	14265-45-3	1.5 U	1.5	5.0	1
The 40 CFR Part 136 requires that this analysis be performed immediately (within 15 minutes) upon sample collection. Because this was not possible, the result may not be used for reporting purposes.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	16 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18150011	06/04/2018 05:33	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18150011	05/30/2018 14:00	Anthony C Polaski	1
01750	Calcium	SW-846 6010C	1	181491063601	05/31/2018 13:07	Lisa J Cooke	1
01754	Iron	SW-846 6010C	1	181491063601	05/31/2018 13:07	Lisa J Cooke	1
01757	Magnesium	SW-846 6010C	1	181491063601	05/31/2018 13:07	Lisa J Cooke	1
07058	Manganese	SW-846 6010C	1	181491063601	05/31/2018 13:07	Lisa J Cooke	1
01762	Potassium	SW-846 6010C	1	181491063601	05/31/2018 13:07	Lisa J Cooke	1
01767	Sodium	SW-846 6010C	1	181491063601	05/31/2018 13:07	Lisa J Cooke	1
10636	ICP-WW/TL, 3010A (tot) - U4	SW-846 3010A	1	181491063601	05/30/2018 16:20	JoElla L Rice	1
00224	Chloride	EPA 300.0	1	18145987117B	05/26/2018 06:03	Clinton M Wilson	5
00368	Nitrate Nitrogen	EPA 300.0	1	18145987117B	05/26/2018 06:03	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	18145987117B	05/26/2018 06:03	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	18145987117B	05/26/2018 06:03	Clinton M Wilson	5

*=This limit was used in the evaluation of the final result

Sample Description: SW-MERR-401W-NS Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629872
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10

Collection Date/Time: 05/24/2018 13:00

SDG#: GOA18-15

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
12892	Ammonia Nitrogen	EPA 350.1	1	18151107101A	05/31/2018 11:20	Ashlynn M Cornelius	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-2011	1	18149003102A	05/30/2018 01:51	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-2011	1	18149003102A	05/30/2018 01:51	Jeremy L Bolf	1
13858	Total Suspended Solids	SM 2540 D-2011	1	18151385801A	05/31/2018 09:43	Amy L Hankins	1
00229	Sulfite	SM 4500-SO3 B-2011	1	18150022901A	05/30/2018 09:55	Michelle L Lalli	1

*=This limit was used in the evaluation of the final result

Sample Description: DUP-1 Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629873
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submission Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 08:55
SDG#: GOA18-16FD

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous		EPA 537 Version 1.1	ng/l	ng/l	ng/l	
		Modified				
14473	10:2-fluorotelomersulfonate	120226-60-0	2.8 U	2.8	8.3	1
14473	4:2 fluorotelomersulfonate	757124-72-4	0.92 U	0.92	2.8	1
14473	6:2 fluorotelomersulfonate	27619-97-2	1.4 J	0.92	1.8	1
14473	8:2 fluorotelomersulfonate	39108-34-4	1.8 U	1.8	5.5	1
14473	NEtFOSAA	2991-50-6	0.92 U	0.92	2.8	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NEtPFOSA	4151-50-2	2.8 U	2.8	8.3	1
	NEtPFOSA is the acronym for N-ethylperfluoro-1-octanesulfonamide					
14473	NEtPFOSAE	1691-99-2	0.92 U	0.92	2.8	1
	NEtPFOSAE is the acronym for 2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol					
14473	NMeFOSAA	2355-31-9	0.92 U	0.92	2.8	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMePFOSA	31506-32-8	2.8 U	2.8	8.3	1
	NMePFOSA is the acronym for N-methylperfluoro-1-octanesulfonamide					
14473	NMePFOSAE	24448-09-7	0.92 U	0.92	2.8	1
	NMePFOSAE is the acronym for 2-(N-methylperfluoro-1-octanesulfonamido)-ethanol					
14473	Perfluorobutanesulfonic Acid	375-73-5	0.93	0.28	0.92	1
14473	Perfluorobutanoic acid	375-22-4	2.4 J	1.8	5.5	1
14473	Perfluorodecanesulfonate	335-77-3	0.55 U	0.55	1.8	1
14473	Perfluorodecanoic acid	335-76-2	0.92 U	0.92	1.8	1
14473	Perfluorododecanesulfonate	79780-39-5	0.28 U	0.28	0.92	1
14473	Perfluorododecanoic acid	307-55-1	0.28 U	0.28	0.92	1
14473	Perfluoroheptanesulfonate	375-92-8	0.37 U	0.37	1.8	1
14473	Perfluoroheptanoic acid	375-85-9	5.9	0.28	0.92	1
14473	Perfluorohexadecanoic acid	67905-19-5	0.28 U	0.28	0.92	1
14473	Perfluorohexanesulfonic Acid	355-46-4	0.76 J	0.37	1.8	1
14473	Perfluorohexanoic acid	307-24-4	9.0	0.37	1.8	1
14473	Perfluorononanesulfonate	474511-07-4	0.55 U	0.55	1.8	1
14473	Perfluorononanoic acid	375-95-1	0.40 J	0.37	1.8	1
14473	Perfluorooctadecanoic acid	16517-11-6	0.28 U	0.28	0.92	1
14473	Perfluorooctanesulfonamide	754-91-6	0.92 U	0.92	2.8	1
14473	Perfluoro-Octanesulfonic Acid	1763-23-1	2.5	0.37	1.8	1
14473	Perfluorooctanoic acid	335-67-1	22	0.28	0.92	1
14473	Perfluoropentanesulfonate	2706-91-4	0.37 U	0.37	1.8	1
14473	Perfluoropentanoic acid	2706-90-3	8.1	1.8	5.5	1
14473	Perfluorotetradecanoic acid	376-06-7	0.28 U	0.28	0.92	1
14473	Perfluorotridecanoic acid	72629-94-8	0.28 U	0.28	0.92	1
14473	Perfluoroundecanoic acid	2058-94-8	0.39 J	0.37	1.8	1

The recovery for the sample injection standard and the labeled compound used as extraction standards is outside the QC acceptance limits as noted

*=This limit was used in the evaluation of the final result

Sample Description: DUP-1 Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629873
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submission Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 08:55
SDG#: GOA18-16FD

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
on the QC Summary. The following corrective action was taken: The sample was reextracted outside the holding time. The data is reported from the in-hold extraction. Both sets of data are included in the data package.						
LC/MS/MS Miscellaneous		SW-846 8321B	ng/l	ng/l	ng/l	
14654	HFPODA	13252-13-6	0.29 U	0.29	0.96	1
	HFPODA is the acronym for 2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid					
14654	NaDONA	958445-44-8	0.29 U	0.29	0.96	1
	NaDONA is the acronym for Sodium dodecafluoro-3H-4,8-dioxanonanoate					
Metals		SW-846 6010C	mg/l	mg/l	mg/l	
01743	Aluminum	7429-90-5	0.0895 J	0.0894	0.400	1
01750	Calcium	7440-70-2	4.33	0.0600	0.400	1
01754	Iron	7439-89-6	0.471	0.0805	0.400	1
01757	Magnesium	7439-95-4	0.870	0.0374	0.200	1
07058	Manganese	7439-96-5	0.0471	0.0016	0.0100	1
01762	Potassium	7440-09-7	0.945 J	0.179	1.00	1
01767	Sodium	7440-23-5	17.6	0.321	2.00	1
07072	Zinc	7440-66-6	0.0065 U	0.0065	0.0400	1
		SW-846 6020A	mg/l	mg/l	mg/l	
06024	Antimony	7440-36-0	0.00045 U	0.00045	0.0020	1
06025	Arsenic	7440-38-2	0.00072 U	0.00072	0.0040	1
06026	Barium	7440-39-3	0.0097	0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000079 J	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015 U	0.00015	0.0010	1
06031	Chromium	7440-47-3	0.00087 U	0.00087	0.0040	1
06032	Cobalt	7440-48-4	0.00024 J	0.00016	0.0010	1
06033	Copper	7440-50-8	0.00075 J	0.00054	0.0040	1
06035	Lead	7439-92-1	0.00045 J	0.00011	0.0020	1
06039	Nickel	7440-02-0	0.0010 U	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	Thallium	7440-28-0	0.00012 U	0.00012	0.0010	1
06048	Vanadium	7440-62-2	0.00038 J	0.00021	0.0010	1
		SW-846 7470A	mg/l	mg/l	mg/l	
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry		EPA 300.0	mg/l	mg/l	mg/l	
00224	Chloride	16887-00-6	29.4	1.0	2.0	5
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	Sulfate	14808-79-8	5.0	1.5	5.0	5

*=This limit was used in the evaluation of the final result

Sample Description: DUP-1 Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629873
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 08:55
SDG#: GOA18-16FD

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Wet Chemistry						
12892	Ammonia Nitrogen	7664-41-7	0.22	mg/l 0.050	mg/l 0.10	1
SM 2320 B-2011						
12150	Total Alkalinity to pH 4.5	n.a.	8.3	mg/l as CaCO3 1.7	mg/l as CaCO3 5.0	1
12149	Bicarbonate Alkalinity	n.a.	8.3	mg/l as CaCO3 1.7	mg/l as CaCO3 5.0	1
SM 2540 D-2011						
13858	Total Suspended Solids	n.a.	3.13	mg/l 1.00	mg/l 3.00	1
SM 4500-SO3 B-2011						
00229	Sulfite	14265-45-3	1.5 U	mg/l 1.5	mg/l 5.0	1
The 40 CFR Part 136 requires that this analysis be performed immediately (within 15 minutes) upon sample collection. Because this was not possible, the result may not be used for reporting purposes.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	32 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18149021	06/10/2018 12:08	Devon M Whooley	1
14654	HFPODA, NaDONA	SW-846 8321B	1	18150005	05/31/2018 15:45	Jason W Knight	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18149021	05/29/2018 14:20	Danielle D McCully	1
14659	PFECA Water Prep	SW-846 8321B	1	18150005	05/30/2018 07:15	Pamela Rothharpt	1
01743	Aluminum	SW-846 6010C	1	181491063601	05/31/2018 13:11	Lisa J Cooke	1
01750	Calcium	SW-846 6010C	1	181491063601	05/31/2018 13:11	Lisa J Cooke	1
01754	Iron	SW-846 6010C	1	181491063601	05/31/2018 13:11	Lisa J Cooke	1
01757	Magnesium	SW-846 6010C	1	181491063601	05/31/2018 13:11	Lisa J Cooke	1
07058	Manganese	SW-846 6010C	1	181491063601	05/31/2018 13:11	Lisa J Cooke	1
01762	Potassium	SW-846 6010C	1	181491063601	05/31/2018 13:11	Lisa J Cooke	1
01767	Sodium	SW-846 6010C	1	181491063601	05/31/2018 13:11	Lisa J Cooke	1
07072	Zinc	SW-846 6010C	1	181491063601	05/31/2018 13:11	Lisa J Cooke	1
06024	Antimony	SW-846 6020A	1	181491063901A	05/30/2018 08:09	Choon Y Tian	1
06025	Arsenic	SW-846 6020A	1	181491063901A	05/30/2018 08:09	Choon Y Tian	1
06026	Barium	SW-846 6020A	1	181491063901D	05/30/2018 08:09	Choon Y Tian	1
06027	Beryllium	SW-846 6020A	1	181491063901A	05/30/2018 08:09	Choon Y Tian	1
06028	Cadmium	SW-846 6020A	1	181491063901A	05/30/2018 08:09	Choon Y Tian	1
06031	Chromium	SW-846 6020A	1	181491063901A	05/30/2018 08:09	Choon Y Tian	1
06032	Cobalt	SW-846 6020A	1	181491063901A	05/30/2018 08:09	Choon Y Tian	1
06033	Copper	SW-846 6020A	1	181491063901A	05/30/2018 08:09	Choon Y Tian	1

*=This limit was used in the evaluation of the final result

Sample Description: DUP-1 Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629873
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submission Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 08:55
SDG#: GOA18-16FD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06035	Lead	SW-846 6020A	1	181491063901A	05/30/2018 08:09	Choon Y Tian	1
06039	Nickel	SW-846 6020A	1	181491063901A	05/30/2018 08:09	Choon Y Tian	1
06041	Selenium	SW-846 6020A	1	181491063901B	05/30/2018 08:09	Choon Y Tian	1
06042	Silver	SW-846 6020A	1	181491063901A	05/30/2018 08:09	Choon Y Tian	1
06045	Thallium	SW-846 6020A	1	181491063901A	05/30/2018 08:09	Choon Y Tian	1
06048	Vanadium	SW-846 6020A	1	181491063901A	05/30/2018 08:09	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	181510571301	06/01/2018 07:16	Damary Valentin	1
10636	ICP-WW/TL, 3010A (tot) - U4	SW-846 3010A	1	181491063601	05/30/2018 16:20	JoElla L Rice	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	181491063901	05/29/2018 21:00	Annamaria Kuhns	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	181510571301	05/31/2018 16:35	JoElla L Rice	1
00224	Chloride	EPA 300.0	1	18145987217A	05/26/2018 08:54	Clinton M Wilson	5
00368	Nitrate Nitrogen	EPA 300.0	1	18145987217A	05/26/2018 08:54	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	18145987217A	05/26/2018 08:54	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	18145987217A	05/26/2018 08:54	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	18151107101A	05/31/2018 11:22	Ashlynn M Cornelius	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-2011	1	18149003103A	05/30/2018 04:45	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-2011	1	18149003103A	05/30/2018 04:45	Jeremy L Bolf	1
13858	Total Suspended Solids	SM 2540 D-2011	1	18151385801A	05/31/2018 09:43	Amy L Hankins	1
00229	Sulfite	SM 4500-SO3 B-2011	1	18150022901A	05/30/2018 09:55	Michelle L Lalli	1

*=This limit was used in the evaluation of the final result

Sample Description: DUP-2 Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629874
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 13:00
SDG#: GOA18-17FD

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous EPA 537 Version 1.1 Modified						
14473	NEtFOSAA	2991-50-6	0.91 U	0.91	2.7	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.91 U	0.91	2.7	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonic Acid	375-73-5	0.72 J	0.27	0.91	1
14473	Perfluorobutanoic acid	375-22-4	1.8 U	1.8	5.4	1
14473	Perfluorodecanoic acid	335-76-2	0.91 U	0.91	1.8	1
14473	Perfluorododecanoic acid	307-55-1	0.27 U	0.27	0.91	1
14473	Perfluoroheptanoic acid	375-85-9	0.65 J	0.27	0.91	1
14473	Perfluorohexanesulfonic Acid	355-46-4	0.51 J	0.36	1.8	1
14473	Perfluorohexanoic acid	307-24-4	1.3 J	0.36	1.8	1
14473	Perfluorononanoic acid	375-95-1	0.36 U	0.36	1.8	1
14473	Perfluoro-Octanesulfonic Acid	1763-23-1	1.0 J	0.36	1.8	1
14473	Perfluorooctanoic acid	335-67-1	2.4	0.27	0.91	1
14473	Perfluoropentanoic acid	2706-90-3	1.8 U	1.8	5.4	1
14473	Perfluorotetradecanoic acid	376-06-7	0.27 U	0.27	0.91	1
14473	Perfluorotridecanoic acid	72629-94-8	0.27 U	0.27	0.91	1
14473	Perfluoroundecanoic acid	2058-94-8	0.36 U	0.36	1.8	1

The recovery for the method blank labeled compound(s) used as extraction standard(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and no target analytes were detected, the data is reported.

The LCS/LCSD labeled compound(s) used as extraction standard(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

The sample injection internal standard peak areas were outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

The recovery for several labeled compounds used as extraction standards is outside of QC acceptance limits as noted on the QC Summary. The following corrective action was taken:

This sample was re-extracted and the recovery for labeled compounds used as extraction standards is again outside of QC acceptance limits. The data reported is from the initial trial and both sets of data are included in the data package.

Metals		SW-846 6010C	mg/l	mg/l	mg/l	
01750	Calcium	7440-70-2	4.16	0.0600	0.400	1
01754	Iron	7439-89-6	0.290 J	0.0805	0.400	1
01757	Magnesium	7439-95-4	0.839	0.0374	0.200	1

*=This limit was used in the evaluation of the final result

Sample Description: DUP-2 Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629874
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 13:00
SDG#: GOA18-17FD

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Metals		SW-846 6010C	mg/l	mg/l	mg/l	
07058	Manganese	7439-96-5	0.0299	0.0016	0.0100	1
01762	Potassium	7440-09-7	1.04	0.179	1.00	1
01767	Sodium	7440-23-5	16.5	0.321	2.00	1
Wet Chemistry		EPA 300.0	mg/l	mg/l	mg/l	
00224	Chloride	16887-00-6	24.9	1.0	2.0	5
00368	Nitrate Nitrogen	14797-55-8	0.25 U	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	Sulfate	14808-79-8	5.0 J	1.5	5.0	5
		EPA 350.1	mg/l	mg/l	mg/l	
12892	Ammonia Nitrogen	7664-41-7	0.25	0.050	0.10	1
		SM 2320 B-2011	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	
12150	Total Alkalinity to pH 4.5	n.a.	8.3	1.7	5.0	1
12149	Bicarbonate Alkalinity	n.a.	8.3	1.7	5.0	1
		SM 2540 D-2011	mg/l	mg/l	mg/l	
13858	Total Suspended Solids	n.a.	1.00 U	1.00	3.00	1
		SM 4500-SO3 B-2011	mg/l	mg/l	mg/l	
00229	Sulfite	14265-45-3	1.5 U	1.5	5.0	1
The 40 CFR Part 136 requires that this analysis be performed immediately (within 15 minutes) upon sample collection. Because this was not possible, the result may not be used for reporting purposes.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	16 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18150011	06/04/2018 05:48	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18150011	05/30/2018 14:00	Anthony C Polaski	1
01750	Calcium	SW-846 6010C	1	181491063601	05/31/2018 13:14	Lisa J Cooke	1
01754	Iron	SW-846 6010C	1	181491063601	05/31/2018 13:14	Lisa J Cooke	1
01757	Magnesium	SW-846 6010C	1	181491063601	05/31/2018 13:14	Lisa J Cooke	1
07058	Manganese	SW-846 6010C	1	181491063601	05/31/2018 13:14	Lisa J Cooke	1
01762	Potassium	SW-846 6010C	1	181491063601	05/31/2018 13:14	Lisa J Cooke	1

*=This limit was used in the evaluation of the final result

Sample Description: DUP-2 Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629874
ELLE Group #: 1948018
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 13:00
SDG#: GOA18-17FD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01767	Sodium	SW-846 6010C	1	181491063601	05/31/2018 13:14	Lisa J Cooke	1
10636	ICP-WW/TL, 3010A (tot) - U4	SW-846 3010A	1	181491063601	05/30/2018 16:20	JoElla L Rice	1
00224	Chloride	EPA 300.0	1	18145987217A	05/26/2018 09:11	Clinton M Wilson	5
00368	Nitrate Nitrogen	EPA 300.0	1	18145987217A	05/26/2018 09:11	Clinton M Wilson	5
01506	Nitrite Nitrogen	EPA 300.0	1	18145987217A	05/26/2018 09:11	Clinton M Wilson	5
00228	Sulfate	EPA 300.0	1	18145987217A	05/26/2018 09:11	Clinton M Wilson	5
12892	Ammonia Nitrogen	EPA 350.1	1	18151107101A	05/31/2018 11:23	Ashlynn M Cornelius	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-2011	1	18149003102A	05/30/2018 01:38	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-2011	1	18149003102A	05/30/2018 01:38	Jeremy L Bolf	1
13858	Total Suspended Solids	SM 2540 D-2011	1	18151385801A	05/31/2018 09:43	Amy L Hankins	1
00229	Sulfite	SM 4500-SO3 B-2011	1	18150022901A	05/30/2018 09:55	Michelle L Lalli	1

*=This limit was used in the evaluation of the final result

Sample Description: EB-1 Grab Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629875
ELLE Group #: 1948018
Matrix: Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 10:45
SDG#: GOA18-18EB

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous		EPA 537 Version 1.1 Modified	ng/l	ng/l	ng/l	
14473	NEtFOSAA	2991-50-6	0.90 U	0.90	2.7	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.90 U	0.90	2.7	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonic Acid	375-73-5	0.27 U	0.27	0.90	1
14473	Perfluorobutanoic acid	375-22-4	1.8 U	1.8	5.4	1
14473	Perfluorodecanoic acid	335-76-2	0.90 U	0.90	1.8	1
14473	Perfluorododecanoic acid	307-55-1	0.27 U	0.27	0.90	1
14473	Perfluoroheptanoic acid	375-85-9	0.27 U	0.27	0.90	1
14473	Perfluorohexanesulfonic Acid	355-46-4	0.36 U	0.36	1.8	1
14473	Perfluorohexanoic acid	307-24-4	0.36 U	0.36	1.8	1
14473	Perfluorononanoic acid	375-95-1	0.36 U	0.36	1.8	1
14473	Perfluoro-Octanesulfonic Acid	1763-23-1	0.36 U	0.36	1.8	1
14473	Perfluorooctanoic acid	335-67-1	0.27 U	0.27	0.90	1
14473	Perfluoropentanoic acid	2706-90-3	1.8 U	1.8	5.4	1
14473	Perfluorotetradecanoic acid	376-06-7	0.27 U	0.27	0.90	1
14473	Perfluorotridecanoic acid	72629-94-8	0.27 U	0.27	0.90	1
14473	Perfluoroundecanoic acid	2058-94-8	0.36 U	0.36	1.8	1

The recovery for the method blank labeled compound(s) used as extraction standard(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and no target analytes were detected, the data is reported.

The LCS/LCSD labeled compound(s) used as extraction standard(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

Metals		SW-846 6010C	mg/l	mg/l	mg/l	
01750	Calcium	7440-70-2	0.0600 U	0.0600	0.400	1
01754	Iron	7439-89-6	0.0805 U	0.0805	0.400	1
01757	Magnesium	7439-95-4	0.0374 U	0.0374	0.200	1
07058	Manganese	7439-96-5	0.0016 U	0.0016	0.0100	1
01762	Potassium	7440-09-7	0.179 U	0.179	1.00	1
01767	Sodium	7440-23-5	0.321 U	0.321	2.00	1
Wet Chemistry		EPA 300.0	mg/l	mg/l	mg/l	
00224	Chloride	16887-00-6	0.20 U	0.20	0.40	1
00368	Nitrate Nitrogen	14797-55-8	0.050 U	0.050	0.10	1
01506	Nitrite Nitrogen	14797-65-0	0.050 U	0.050	0.10	1
00228	Sulfate	14808-79-8	0.30 U	0.30	1.0	1

*=This limit was used in the evaluation of the final result

Sample Description: EB-1 Grab Water
SGPP/166-8623

Project Name: SGPP-Merrimack NH

Golder Associates
ELLE Sample #: WW 9629875
ELLE Group #: 1948018
Matrix: Water

Submittal Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 10:45
SDG#: GOA18-18EB

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Wet Chemistry						
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
EPA 350.1						
SM 2320 B-2011						
12150	Total Alkalinity to pH 4.5	n.a.	1.7 U	1.7	5.0	1
12149	Bicarbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
SM 2540 D-2011						
13858	Total Suspended Solids	n.a.	1.00 U	1.00	3.00	1
SM 4500-SO3 B-2011						
00229	Sulfite	14265-45-3	1.5 U	1.5	5.0	1
The 40 CFR Part 136 requires that this analysis be performed immediately (within 15 minutes) upon sample collection. Because this was not possible, the result may not be used for reporting purposes.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	16 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18150011	06/04/2018 06:02	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18150011	05/30/2018 14:00	Anthony C Polaski	1
01750	Calcium	SW-846 6010C	1	181491063601	05/31/2018 13:17	Lisa J Cooke	1
01754	Iron	SW-846 6010C	1	181491063601	05/31/2018 13:17	Lisa J Cooke	1
01757	Magnesium	SW-846 6010C	1	181491063601	05/31/2018 13:17	Lisa J Cooke	1
07058	Manganese	SW-846 6010C	1	181491063601	05/31/2018 13:17	Lisa J Cooke	1
01762	Potassium	SW-846 6010C	1	181491063601	05/31/2018 13:17	Lisa J Cooke	1
01767	Sodium	SW-846 6010C	1	181491063601	05/31/2018 13:17	Lisa J Cooke	1
10636	ICP-WW/TL, 3010A (tot) - U4	SW-846 3010A	1	181491063601	05/30/2018 16:20	JoElla L Rice	1
00224	Chloride	EPA 300.0	1	18145987217A	05/26/2018 09:28	Clinton M Wilson	1
00368	Nitrate Nitrogen	EPA 300.0	1	18145987217A	05/26/2018 09:28	Clinton M Wilson	1
01506	Nitrite Nitrogen	EPA 300.0	1	18145987217A	05/26/2018 09:28	Clinton M Wilson	1
00228	Sulfate	EPA 300.0	1	18145987217A	05/26/2018 09:28	Clinton M Wilson	1
12892	Ammonia Nitrogen	EPA 350.1	1	18151107101A	05/31/2018 11:25	Ashlynn M Cornelius	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-2011	1	18149003102A	05/30/2018 01:07	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-2011	1	18149003102A	05/30/2018 01:07	Jeremy L Bolf	1
13858	Total Suspended Solids	SM 2540 D-2011	1	18151385801A	05/31/2018 09:43	Amy L Hankins	1
00229	Sulfite	SM 4500-SO3 B-2011	1	18150022901A	05/30/2018 09:55	Michelle L Lalli	1

*=This limit was used in the evaluation of the final result

Sample Description: FB-1 Grab Water
SGPP/166-8623

Project Name: SGPP-Merrimack NH

Golder Associates
ELLE Sample #: WW 9629876
ELLE Group #: 1948018
Matrix: Water

Submittal Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 10:55
SDG#: GOA18-19FB

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous		EPA 537 Version 1.1 Modified	ng/l	ng/l	ng/l	
14473	NEtFOSAA	2991-50-6	0.91 U	0.91	2.7	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.91 U	0.91	2.7	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonic Acid	375-73-5	0.27 U	0.27	0.91	1
14473	Perfluorobutanoic acid	375-22-4	1.8 U	1.8	5.5	1
14473	Perfluorodecanoic acid	335-76-2	0.91 U	0.91	1.8	1
14473	Perfluorododecanoic acid	307-55-1	0.27 U	0.27	0.91	1
14473	Perfluoroheptanoic acid	375-85-9	0.27 U	0.27	0.91	1
14473	Perfluorohexanesulfonic Acid	355-46-4	0.36 U	0.36	1.8	1
14473	Perfluorohexanoic acid	307-24-4	0.36 U	0.36	1.8	1
14473	Perfluorononanoic acid	375-95-1	0.36 U	0.36	1.8	1
14473	Perfluoro-Octanesulfonic Acid	1763-23-1	0.36 U	0.36	1.8	1
14473	Perfluorooctanoic acid	335-67-1	0.27 U	0.27	0.91	1
14473	Perfluoropentanoic acid	2706-90-3	1.8 U	1.8	5.5	1
14473	Perfluorotetradecanoic acid	376-06-7	0.27 U	0.27	0.91	1
14473	Perfluorotridecanoic acid	72629-94-8	0.27 U	0.27	0.91	1
14473	Perfluoroundecanoic acid	2058-94-8	0.36 U	0.36	1.8	1

The recovery for the method blank labeled compound(s) used as extraction standard(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and no target analytes were detected, the data is reported.

The LCS/LCSD labeled compound(s) used as extraction standard(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

The recovery for the sample labeled compound(s) used as extraction standard(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and no target analytes were detected, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	16 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18150011	06/04/2018 06:17	Devon M Whooley	1

*=This limit was used in the evaluation of the final result

Sample Description: FB-1 Grab Water
SGPP/166-8623

Project Name: SGPP-Merrimack NH

Golder Associates
ELLE Sample #: WW 9629876
ELLE Group #: 1948018
Matrix: Water

Submittal Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018 10:55
SDG#: GOA18-19FB

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18150011	05/30/2018 14:00	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Sample Description: TB-1 Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9629877
ELLE Group #: 1948018
Matrix: Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/25/2018 10:10
Collection Date/Time: 05/24/2018
SDG#: GOA18-20TB

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous		EPA 537 Version 1.1 Modified	ng/l	ng/l	ng/l	
14473	NEtFOSAA	2991-50-6	0.91 U	0.91	2.7	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.91 U	0.91	2.7	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonic Acid	375-73-5	0.27 U	0.27	0.91	1
14473	Perfluorobutanoic acid	375-22-4	1.8 U	1.8	5.5	1
14473	Perfluorodecanoic acid	335-76-2	0.91 U	0.91	1.8	1
14473	Perfluorododecanoic acid	307-55-1	0.27 U	0.27	0.91	1
14473	Perfluoroheptanoic acid	375-85-9	0.27 U	0.27	0.91	1
14473	Perfluorohexanesulfonic Acid	355-46-4	0.36 U	0.36	1.8	1
14473	Perfluorohexanoic acid	307-24-4	0.36 U	0.36	1.8	1
14473	Perfluorononanoic acid	375-95-1	0.36 U	0.36	1.8	1
14473	Perfluoro-Octanesulfonic Acid	1763-23-1	0.36 U	0.36	1.8	1
14473	Perfluorooctanoic acid	335-67-1	0.27 U	0.27	0.91	1
14473	Perfluoropentanoic acid	2706-90-3	1.8 U	1.8	5.5	1
14473	Perfluorotetradecanoic acid	376-06-7	0.27 U	0.27	0.91	1
14473	Perfluorotridecanoic acid	72629-94-8	0.27 U	0.27	0.91	1
14473	Perfluoroundecanoic acid	2058-94-8	0.36 U	0.36	1.8	1

The recovery for the method blank labeled compound(s) used as extraction standard(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and no target analytes were detected, the data is reported.

The LCS/LCSD labeled compound(s) used as extraction standard(s) recovery is outside the QC acceptance limits as noted on the QC Summary. Since the recovery for the target analytes is compliant, the data is reported.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	16 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18150011	06/04/2018 06:32	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18150011	05/30/2018 14:00	Anthony C Polaski	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: Golder Associates
Reported: 06/19/2018 10:51

Group Number: 1948018

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	MDL**	LOQ
ng/l	ng/l	ng/l	ng/l
Batch number: 18149021	Sample number(s): 9629860-9629862,9629868,9629873		
10:2-fluorotelomersulfonate	3.0 U	3.0	9.0
4:2 fluorotelomersulfonate	1.0 U	1.0	3.0
6:2 fluorotelomersulfonate	1.0 U	1.0	2.0
8:2 fluorotelomersulfonate	2.0 U	2.0	6.0
NEtFOSAA	1.0 U	1.0	3.0
NEtPFOSA	3.0 U	3.0	9.0
NEtPFOSAE	1.0 U	1.0	3.0
NMeFOSAA	1.0 U	1.0	3.0
NMePFOSA	3.0 U	3.0	9.0
NMePFOSAE	1.0 U	1.0	3.0
Perfluorobutanesulfonic Acid	0.30 U	0.30	1.0
Perfluorobutanoic acid	2.0 U	2.0	6.0
Perfluorodecanesulfonate	0.60 U	0.60	2.0
Perfluorodecanoic acid	1.0 U	1.0	2.0
Perfluorododecanesulfonate	0.30 U	0.30	1.0
Perfluorododecanoic acid	0.30 U	0.30	1.0
Perfluoroheptanesulfonate	0.40 U	0.40	2.0
Perfluoroheptanoic acid	0.30 U	0.30	1.0
Perfluorohexadecanoic acid	0.30 U	0.30	1.0
Perfluorohexanesulfonic Acid	0.40 U	0.40	2.0
Perfluorohexanoic acid	0.40 U	0.40	2.0
Perfluorononanesulfonate	0.60 U	0.60	2.0
Perfluorononanoic acid	0.40 U	0.40	2.0
Perfluorooctadecanoic acid	0.30 U	0.30	1.0
Perfluorooctanesulfonamide	1.0 U	1.0	3.0
Perfluoro-Octanesulfonic Acid	0.40 U	0.40	2.0
Perfluorooctanoic acid	0.30 U	0.30	1.0
Perfluoropentanesulfonate	0.40 U	0.40	2.0
Perfluoropentanoic acid	2.0 U	2.0	6.0
Perfluorotetradecanoic acid	0.30 U	0.30	1.0
Perfluorotridecanoic acid	0.30 U	0.30	1.0
Perfluoroundecanoic acid	0.40 U	0.40	2.0
Batch number: 18150005	Sample number(s): 9629860-9629862,9629868,9629873		
HFPODA	0.30 U	0.30	1.0
NaDONA	0.30 U	0.30	1.0
Batch number: 18150011	Sample number(s): 9629858-9629859,9629863-9629867,9629869-9629872,9629874-9629877		
NEtFOSAA	1.0 U	1.0	3.0
NMeFOSAA	1.0 U	1.0	3.0

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(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: Golder Associates
Reported: 06/19/2018 10:51

Group Number: 1948018

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	ng/l	ng/l	ng/l
Perfluorobutanesulfonic Acid	0.30 U	0.30	1.0
Perfluorobutanoic acid	2.0 U	2.0	6.0
Perfluorodecanoic acid	1.0 U	1.0	2.0
Perfluorododecanoic acid	0.30 U	0.30	1.0
Perfluoroheptanoic acid	0.30 U	0.30	1.0
Perfluorohexanesulfonic Acid	0.40 U	0.40	2.0
Perfluorohexanoic acid	0.40 U	0.40	2.0
Perfluorononanoic acid	0.40 U	0.40	2.0
Perfluoro-Octanesulfonic Acid	0.40 U	0.40	2.0
Perfluorooctanoic acid	0.30 U	0.30	1.0
Perfluoropentanoic acid	2.0 U	2.0	6.0
Perfluorotetradecanoic acid	0.30 U	0.30	1.0
Perfluorotridecanoic acid	0.30 U	0.30	1.0
Perfluoroundecanoic acid	0.40 U	0.40	2.0
	mg/l	mg/l	mg/l
Batch number: 181491063601	Sample number(s): 9629859-9629875		
Aluminum	0.0894 U	0.0894	0.400
Calcium	0.0600 U	0.0600	0.400
Iron	0.0805 U	0.0805	0.400
Magnesium	0.0374 U	0.0374	0.200
Manganese	0.0016 U	0.0016	0.0100
Potassium	0.179 U	0.179	1.00
Sodium	0.321 U	0.321	2.00
Zinc	0.0065 U	0.0065	0.0400
Batch number: 181491063901A	Sample number(s): 9629860-9629862,9629868,9629873		
Antimony	0.00045 U	0.00045	0.0020
Arsenic	0.00072 U	0.00072	0.0040
Beryllium	0.000071 U	0.000071	0.0010
Cadmium	0.00015 U	0.00015	0.0010
Chromium	0.00087 U	0.00087	0.0040
Cobalt	0.00016 U	0.00016	0.0010
Copper	0.00054 U	0.00054	0.0040
Lead	0.00011 U	0.00011	0.0020
Nickel	0.0010 U	0.0010	0.0040
Silver	0.00015 U	0.00015	0.0010
Thallium	0.00012 U	0.00012	0.0010
Vanadium	0.00021 U	0.00021	0.0010
Batch number: 181491063901B	Sample number(s): 9629860-9629862,9629868,9629873		
Selenium	0.00050 U	0.00050	0.0040
Batch number: 181491063901D	Sample number(s): 9629860-9629862,9629868,9629873		
Barium	0.00072 U	0.00072	0.0040
Batch number: 181510571301	Sample number(s): 9629860-9629862,9629868,9629873		

*- Outside of specification

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(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: Golder Associates
Reported: 06/19/2018 10:51

Group Number: 1948018

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Mercury	0.000050 U	0.000050	0.00020
Batch number: 18145987117A	Sample number(s): 9629859-9629863		
Chloride	0.20 U	0.20	0.40
Nitrate Nitrogen	0.050 U	0.050	0.10
Nitrite Nitrogen	0.050 U	0.050	0.10
Sulfate	0.30 U	0.30	1.0
Batch number: 18145987117B	Sample number(s): 9629864-9629872		
Chloride	0.20 U	0.20	0.40
Nitrate Nitrogen	0.050 U	0.050	0.10
Nitrite Nitrogen	0.050 U	0.050	0.10
Sulfate	0.30 U	0.30	1.0
Batch number: 18145987217A	Sample number(s): 9629873-9629875		
Chloride	0.20 U	0.20	0.40
Nitrate Nitrogen	0.050 U	0.050	0.10
Nitrite Nitrogen	0.050 U	0.050	0.10
Sulfate	0.30 U	0.30	1.0
Batch number: 18150107103A	Sample number(s): 9629859		
Ammonia Nitrogen	0.050 U	0.050	0.10
Batch number: 18150107103B	Sample number(s): 9629860-9629869		
Ammonia Nitrogen	0.050 U	0.050	0.10
Batch number: 18151107101A	Sample number(s): 9629870-9629875		
Ammonia Nitrogen	0.050 U	0.050	0.10
Batch number: 18150022901A	Sample number(s): 9629859-9629875		
Sulfite	1.5 U	1.5	5.0
Batch number: 18151385801A	Sample number(s): 9629859-9629875		
Total Suspended Solids	1.00 U	1.00	3.00
	mg/l as CaCO ₃	mg/l as CaCO ₃	mg/l as CaCO ₃
Batch number: 18149003101A	Sample number(s): 9629867		
Total Alkalinity to pH 4.5	1.7 U	1.7	5.0
Batch number: 18149003102A	Sample number(s): 9629862,9629865-9629866,9629868-9629872,9629874-9629875		
Total Alkalinity to pH 4.5	1.7 U	1.7	5.0
Batch number: 18149003102B	Sample number(s): 9629860		
Total Alkalinity to pH 4.5	1.7 U	1.7	5.0
Batch number: 18149003103A	Sample number(s): 9629859,9629861,9629863-9629864,9629873		
Total Alkalinity to pH 4.5	1.7 U	1.7	5.0

*- Outside of specification

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(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: Golder Associates
Reported: 06/19/2018 10:51

Group Number: 1948018

LCS/LCSD

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
Batch number: 18149021	Sample number(s): 9629860-9629862,9629868,9629873								
10:2-fluorotelomersulfonate	15.42	16.49	15.42	17.52	107	114	49-186	6	30
4:2 fluorotelomersulfonate	14.94	19.03	14.94	17.66	127	118	82-152	7	30
6:2 fluorotelomersulfonate	15.17	15.63	15.17	15.16	103	100	66-155	3	30
8:2 fluorotelomersulfonate	15.33	19.3	15.33	18.23	126	119	66-148	6	30
NEtFOSAA	5.44	6.58	5.44	6.11	121	112	55-169	7	30
NEtPFOSA	5.44	7.96	5.44	7.01	146*	129	70-130	13	30
NEtPFOSAE	5.44	7.57	5.44	7.18	139*	132*	70-130	5	30
NMeFOSAA	5.44	7.07	5.44	7.01	130	129	62-167	1	30
NMePFOSA	5.44	8.15	5.44	5.04	150*	93	70-130	47*	30
NMePFOSAE	5.44	4.65	5.44	5.00	85	92	70-130	7	30
Perfluorobutanesulfonic Acid	4.81	6.10	4.81	5.89	127	122	73-128	4	30
Perfluorobutanoic acid	5.44	6.90	5.44	6.77	127	124	74-142	2	30
Perfluorodecanesulfonate	5.24	6.00	5.24	6.27	114	120	60-135	4	30
Perfluorodecanoic acid	5.44	7.28	5.44	7.26	134	133	69-148	0	30
Perfluorododecanesulfonate	5.26	5.93	5.26	5.87	113	112	70-130	1	30
Perfluorododecanoic acid	5.44	6.03	5.44	6.23	111	115	75-136	3	30
Perfluoroheptanesulfonate	5.18	6.17	5.18	6.36	119	123	64-135	3	30
Perfluoroheptanoic acid	5.44	5.99	5.44	6.29	110	116	76-140	5	30
Perfluorohexadecanoic acid	5.44	6.84	5.44	6.63	126	122	21-151	3	30
Perfluorohexanesulfonic Acid	5.14	6.12	5.14	5.79	119	113	71-131	6	30
Perfluorohexanoic acid	5.44	6.93	5.44	6.88	127	126	75-135	1	30
Perfluorononanesulfonate	5.22	6.10	5.22	6.18	117	118	66-133	1	30
Perfluorononanoic acid	5.44	6.15	5.44	6.44	113	118	72-148	5	30
Perfluorooctadecanoic acid	5.44	5.84	5.44	5.70	107	105	70-130	3	30
Perfluorooctanesulfonamide	5.44	6.19	5.44	7.63	114	140	65-164	21	30
Perfluoro-Octanesulfonic Acid	5.20	6.40	5.20	6.34	123	122	67-138	1	30
Perfluorooctanoic acid	5.44	7.05	5.44	7.02	130	129	72-138	0	30
Perfluoropentanesulfonate	5.10	6.19	5.10	6.38	121	125	76-127	3	30
Perfluoropentanoic acid	5.44	6.93	5.44	6.75	127	124	74-134	3	30
Perfluorotetradecanoic acid	5.44	6.42	5.44	6.46	118	119	74-135	1	30
Perfluorotridecanoic acid	5.44	6.23	5.44	6.39	114	117	61-145	3	30
Perfluoroundecanoic acid	5.44	6.58	5.44	6.23	121	115	75-146	5	30
Batch number: 18150005	Sample number(s): 9629860-9629862,9629868,9629873								
HFPODA	5.44	4.28	5.44	5.18	79	95	70-130	19	30
NaDONA	5.12	5.92	5.12	5.48	116	107	70-130	8	30
Batch number: 18150011	Sample number(s): 9629858-9629859,9629863-9629867,9629869-9629872,9629874-9629877								
NEtFOSAA	5.44	5.25	5.44	5.47	96	100	55-169	4	30
NMeFOSAA	5.44	5.31	5.44	5.67	98	104	62-167	7	30
Perfluorobutanesulfonic Acid	4.81	4.83	4.81	4.82	100	100	73-128	0	30
Perfluorobutanoic acid	5.44	5.69	5.44	5.75	105	106	74-142	1	30

*- Outside of specification

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

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Quality Control Summary

Client Name: Golder Associates
Reported: 06/19/2018 10:51

Group Number: 1948018

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
Perfluorodecanoic acid	5.44	5.18	5.44	5.37	95	99	69-148	4	30
Perfluorododecanoic acid	5.44	5.35	5.44	5.33	98	98	75-136	0	30
Perfluoroheptanoic acid	5.44	5.28	5.44	5.42	97	100	76-140	3	30
Perfluorohexanesulfonic Acid	5.14	4.74	5.14	4.83	92	94	71-131	2	30
Perfluorohexanoic acid	5.44	4.96	5.44	5.04	91	93	75-135	2	30
Perfluorononanoic acid	5.44	5.44	5.44	5.47	100	101	72-148	1	30
Perfluoro-Octanesulfonic Acid	5.20	5.20	5.20	4.95	100	95	67-138	5	30
Perfluorooctanoic acid	5.44	5.66	5.44	5.53	104	102	72-138	2	30
Perfluoropentanoic acid	5.44	5.70	5.44	5.41	105	99	74-134	5	30
Perfluorotetradecanoic acid	5.44	4.81	5.44	4.76	88	87	74-135	1	30
Perfluorotridecanoic acid	5.44	5.41	5.44	5.56	99	102	61-145	3	30
Perfluoroundecanoic acid	5.44	5.33	5.44	5.41	98	100	75-146	2	30
	mg/l	mg/l	mg/l	mg/l					

Batch number: 181491063601	Sample number(s): 9629859-9629875						
Aluminum	2.00	1.97			98		80-120
Calcium	4.00	4.20			105		88-112
Iron	1.00	1.05			105		80-114
Magnesium	2.00	2.17			109		88-114
Manganese	0.500	0.491			98		90-112
Potassium	10	10.11			101		88-112
Sodium	10	10.12			101		87-112
Zinc	0.500	0.494			99		89-111

Batch number: 181491063901A	Sample number(s): 9629860-9629862,9629868,9629873						
Antimony	0.00600	0.00621			103		80-120
Arsenic	0.0100	0.0103			103		80-120
Beryllium	0.00400	0.00399			100		90-112
Cadmium	0.00500	0.00501			100		84-120
Chromium	0.0500	0.0508			102		90-112
Cobalt	0.250	0.251			100		86-113
Copper	0.0500	0.0516			103		89-120
Lead	0.0150	0.0153			102		90-110
Nickel	0.0500	0.0521			104		90-114
Silver	0.0500	0.0511			102		88-113
Thallium	0.00200	0.00204			102		80-120
Vanadium	0.0500	0.0488			98		90-112

Batch number: 181491063901B	Sample number(s): 9629860-9629862,9629868,9629873						
Selenium	0.0100	0.0102			102		90-113

Batch number: 181491063901D	Sample number(s): 9629860-9629862,9629868,9629873						
Barium	0.0500	0.0494			99		80-120

Batch number: 181510571301	Sample number(s): 9629860-9629862,9629868,9629873						
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*- Outside of specification

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(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: Golder Associates
Reported: 06/19/2018 10:51

Group Number: 1948018

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/l	LCS Conc mg/l	LCSD Spike Added mg/l	LCSD Conc mg/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Mercury	0.00100	0.000886			89		80-114		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 18145987117A	Sample number(s): 9629859-9629863								
Chloride	3.00	2.92			97		90-110		
Nitrate Nitrogen	0.750	0.757			101		90-110		
Nitrite Nitrogen	0.750	0.738			98		90-110		
Sulfate	7.50	7.33			98		90-110		
Batch number: 18145987117B	Sample number(s): 9629864-9629872								
Chloride	3.00	2.92			97		90-110		
Nitrate Nitrogen	0.750	0.757			101		90-110		
Nitrite Nitrogen	0.750	0.738			98		90-110		
Sulfate	7.50	7.33			98		90-110		
Batch number: 18145987217A	Sample number(s): 9629873-9629875								
Chloride	3.00	2.92			97		90-110		
Nitrate Nitrogen	0.750	0.755			101		90-110		
Nitrite Nitrogen	0.750	0.740			99		90-110		
Sulfate	7.50	7.29			97		90-110		
Batch number: 18150107103A	Sample number(s): 9629859								
Ammonia Nitrogen	1.50	1.46	1.50	1.45	97	97	90-110	1	15
Batch number: 18150107103B	Sample number(s): 9629860-9629869								
Ammonia Nitrogen	1.50	1.46	1.50	1.45	97	97	90-110	1	15
Batch number: 18151107101A	Sample number(s): 9629870-9629875								
Ammonia Nitrogen	1.50	1.56			104		90-110		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 18150022901A	Sample number(s): 9629859-9629875								
Sulfite	50	45.5			91		79-105		
Batch number: 18151385801A	Sample number(s): 9629859-9629875								
Total Suspended Solids	150	152.2			101		89-105		
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 18149003101A	Sample number(s): 9629867								
Total Alkalinity to pH 4.5	188	167.67			89		77-109		
Batch number: 18149003102A	Sample number(s): 9629862,9629865-9629866,9629868-9629872,9629874-9629875								
Total Alkalinity to pH 4.5	188	169.29			90		77-109		
Batch number: 18149003102B	Sample number(s): 9629860								
Total Alkalinity to pH 4.5	188	169.29			90		77-109		

*- Outside of specification

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

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Quality Control Summary

Client Name: Golder Associates
Reported: 06/19/2018 10:51

Group Number: 1948018

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/l as CaCO3	LCS Conc mg/l as CaCO3	LCSD Spike Added mg/l as CaCO3	LCSD Conc mg/l as CaCO3	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 18149003103A	Sample number(s): 9629859,9629861,9629863-9629864,9629873								
Total Alkalinity to pH 4.5	188	169.49	188	174.66	90	93	77-109	3	5

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 181491063601	Sample number(s): 9629859-9629875 UNSPK: 9629860									
Aluminum	0.0894 U	2.00	1.82	2.00	1.87	91	94	75-125	3	20
Calcium	31.71	4.00	34.72	4.00	34.41	75 (2)	67 (2)	75-125	1	20
Iron	0.0805 U	1.00	1.12	1.00	1.11	112	111	75-125	0	20
Magnesium	7.03	2.00	8.78	2.00	8.69	87	83	75-125	1	20
Manganese	0.0222	0.500	0.501	0.500	0.503	96	96	75-125	0	20
Potassium	4.19	10	14.1	10	14.12	99	99	75-125	0	20
Sodium	154.52	10	160.38	10	158.62	59 (2)	41 (2)	75-125	1	20
Zinc	0.0371	0.500	0.540	0.500	0.534	101	99	75-125	1	20
Batch number: 181491063901A	Sample number(s): 9629860-9629862,9629868,9629873 UNSPK: 9629860									
Antimony	0.00045 U	0.00600	0.00628	0.00600	0.00672	105	112	75-125	7	20
Arsenic	0.00072 U	0.0100	0.0109	0.0100	0.0108	109	108	75-125	1	20
Beryllium	0.000071 U	0.00400	0.00410	0.00400	0.00406	102	101	75-125	1	20
Cadmium	0.00015 U	0.00500	0.00544	0.00500	0.00538	109	108	75-125	1	20
Chromium	0.00087 U	0.0500	0.0519	0.0500	0.0500	104	100	75-125	4	20
Cobalt	0.00016 U	0.250	0.257	0.250	0.257	103	103	75-125	0	20
Copper	0.000856	0.0500	0.0527	0.0500	0.0532	104	105	75-125	1	20
Lead	0.00011 U	0.0150	0.0155	0.0150	0.0152	103	101	75-125	2	20
Nickel	0.00192	0.0500	0.0540	0.0500	0.0551	104	106	75-125	2	20
Silver	0.00015 U	0.0500	0.0511	0.0500	0.0499	102	100	75-125	2	20
Thallium	0.00012 U	0.00200	0.00214	0.00200	0.00209	107	104	75-125	2	20
Vanadium	0.00021 U	0.0500	0.0515	0.0500	0.0498	103	100	75-125	3	20
Batch number: 181491063901B	Sample number(s): 9629860-9629862,9629868,9629873 UNSPK: 9629860									
Selenium	0.00050 U	0.0100	0.0103	0.0100	0.0100	103	100	75-125	2	20
Batch number: 181491063901D	Sample number(s): 9629860-9629862,9629868,9629873 UNSPK: 9629860									
Barium	0.0802	0.0500	0.127	0.0500	0.128	93	96	75-125	1	20

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Quality Control Summary

Client Name: Golder Associates
Reported: 06/19/2018 10:51

Group Number: 1948018

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 181510571301 Mercury	Sample number(s): 9629860-9629862,9629868,9629873 UNSPK: 9629862 0.000050 U 0.00100 0.000883 0.00100 0.000863 88 86 80-120 2 20									
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 18145987117A Chloride	Sample number(s): 9629859-9629863 UNSPK: P628998 4.32 10 14.68 104 90-110									
Nitrate Nitrogen	1.45	2.50	4.16			108		90-110		
Nitrite Nitrogen	0.25 U	2.50	2.51			100		90-110		
Sulfate	1.5 U	25	25.26			101		90-110		
Batch number: 18145987117B Chloride	Sample number(s): 9629864-9629872 UNSPK: P629006 21.37 10 32.96 116* 90-110									
Nitrate Nitrogen	0.719	2.50	3.19			99		90-110		
Nitrite Nitrogen	0.25 U	2.50	2.47			99		90-110		
Sulfate	6.28	25	30.65			97		90-110		
Batch number: 18145987217A Chloride	Sample number(s): 9629873-9629875 UNSPK: P630130 2.20 10 12.2 100 90-110									
Nitrate Nitrogen	0.25 U	2.50	2.81			113*		90-110		
Nitrite Nitrogen	0.25 U	2.50	2.66			107		90-110		
Sulfate	37.76	25	61.2			94		90-110		
Batch number: 18150107103A Ammonia Nitrogen	Sample number(s): 9629859 UNSPK: 9629859 0.050 U 1.00 0.913 91 90-110									
Batch number: 18150107103B Ammonia Nitrogen	Sample number(s): 9629860-9629869 UNSPK: 9629860 0.050 U 1.00 0.960 96 90-110									
Batch number: 18151107101A Ammonia Nitrogen	Sample number(s): 9629870-9629875 UNSPK: 9629870 0.210 1.00 1.64 143* 90-110									
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 18150022901A Sulfite	Sample number(s): 9629859-9629875 UNSPK: 9629859 1.5 U 50 47 50 47 94 94 79-105 0 5									
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 18149003101A Total Alkalinity to pH 4.5	Sample number(s): 9629867 UNSPK: P628504 133.7 188 301.78 89 77-109									
Batch number: 18149003102A Total Alkalinity to pH 4.5	Sample number(s): 9629862,9629865-9629866,9629868-9629872,9629874-9629875 UNSPK: 9629865 8.36 188 172.8 87 77-109									
Batch number: 18149003102B	Sample number(s): 9629860 UNSPK: 9629865									

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Quality Control Summary

Client Name: Golder Associates
Reported: 06/19/2018 10:51

Group Number: 1948018

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l as CaCO3	MS Spike Added mg/l as CaCO3	MS Conc mg/l as CaCO3	MSD Spike Added mg/l as CaCO3	MSD Conc mg/l as CaCO3	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Total Alkalinity to pH 4.5	8.36	188	172.8			87		77-109		
Batch number: 18149003103A	Sample number(s): 9629859,9629861,9629863-9629864,9629873 UNSPK: P628998									
Total Alkalinity to pH 4.5	10.04	188	171.98			86		77-109		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
Batch number: 181491063601	Sample number(s): 9629859-9629875 BKG: 9629860			
Aluminum	0.0894 U	0.0894 U	0 (1)	20
Calcium	31.71	30.49	4	20
Iron	0.0805 U	0.0805 U	0 (1)	20
Magnesium	7.03	6.80	3	20
Manganese	0.0222	0.0213	4 (1)	20
Potassium	4.19	4.08	3 (1)	20
Sodium	154.52	149.61	3	20
Zinc	0.0371	0.0350	6 (1)	20
Batch number: 181491063901A	Sample number(s): 9629860-9629862,9629868,9629873 BKG: 9629860			
Antimony	0.00045 U	0.00045 U	0 (1)	20
Arsenic	0.00072 U	0.00072 U	0 (1)	20
Beryllium	0.000071 U	0.000071 U	0 (1)	20
Cadmium	0.00015 U	0.00015 U	0 (1)	20
Chromium	0.00087 U	0.00087 U	0 (1)	20
Cobalt	0.00016 U	0.00016 U	0 (1)	20
Copper	0.000856	0.000813	5 (1)	20
Lead	0.00011 U	0.00011 U	0 (1)	20
Nickel	0.00192	0.00192	0 (1)	20
Silver	0.00015 U	0.00015 U	0 (1)	20
Thallium	0.00012 U	0.00012 U	0 (1)	20
Vanadium	0.00021 U	0.00021 U	0 (1)	20
Batch number: 181491063901B	Sample number(s): 9629860-9629862,9629868,9629873 BKG: 9629860			
Selenium	0.00050 U	0.00050 U	0 (1)	20
Batch number: 181491063901D	Sample number(s): 9629860-9629862,9629868,9629873 BKG: 9629860			
Barium	0.0802	0.0763	5	20

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Quality Control Summary

Client Name: Golder Associates
Reported: 06/19/2018 10:51

Group Number: 1948018

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
Batch number: 181510571301 Mercury	Sample number(s): 9629860-9629862,9629868,9629873 BKG: 9629862 0.000050 U 0.000050 U 0 (1) 20			
	mg/l	mg/l		
Batch number: 18145987117A	Sample number(s): 9629859-9629863 BKG: P628998			
Chloride	4.32	4.44	3 (1)	15
Nitrate Nitrogen	1.45	1.49	3 (1)	15
Nitrite Nitrogen	0.25 U	0.25 U	0 (1)	15
Sulfate	1.5 U	1.5 U	0 (1)	15
Batch number: 18145987117B	Sample number(s): 9629864-9629872 BKG: P629006			
Chloride	21.37	21.41	0	15
Nitrate Nitrogen	0.719	0.726	1 (1)	15
Nitrite Nitrogen	0.25 U	0.25 U	0 (1)	15
Sulfate	6.28	6.25	0 (1)	15
Batch number: 18145987217A	Sample number(s): 9629873-9629875 BKG: P630130			
Chloride	2.20	2.24	2 (1)	15
Nitrate Nitrogen	0.25 U	0.25 U	0 (1)	15
Nitrite Nitrogen	0.25 U	0.25 U	0 (1)	15
Sulfate	37.76	37.87	0	15
Batch number: 18150107103A	Sample number(s): 9629859 BKG: 9629859			
Ammonia Nitrogen	0.050 U	0.050 U	0 (1)	20
Batch number: 18150107103B	Sample number(s): 9629860-9629869 BKG: 9629860			
Ammonia Nitrogen	0.050 U	0.050 U	0 (1)	20
Batch number: 18151107101A	Sample number(s): 9629870-9629875 BKG: 9629870			
Ammonia Nitrogen	0.210	0.211	0 (1)	20
	mg/l	mg/l		
Batch number: 18150022901A	Sample number(s): 9629859-9629875 BKG: 9629859			
Sulfite	1.5 U	1.5 U	0 (1)	20
Batch number: 18151385801A	Sample number(s): 9629859-9629875 BKG: P630300			
Total Suspended Solids	210	178	16* (1)	5
	mg/l as CaCO3	mg/l as CaCO3		
Batch number: 18149003101A	Sample number(s): 9629867 BKG: P628504			
Total Alkalinity to pH 4.5	133.7	133.9	0	5
Batch number: 18149003102A	Sample number(s): 9629862,9629865-9629866,9629868-9629872,9629874-9629875 BKG: 9629865			
Total Alkalinity to pH 4.5	8.36	9.22	10* (1)	5
Batch number: 18149003102B	Sample number(s): 9629860 BKG: 9629860			

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Quality Control Summary

Client Name: Golder Associates
Reported: 06/19/2018 10:51

Group Number: 1948018

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l as CaCO ₃	DUP Conc mg/l as CaCO ₃	DUP RPD	DUP RPD Max
Total Alkalinity to pH 4.5	21.74	22.26	2 (1)	5
Batch number: 18149003103A	Sample number(s): 9629859,9629861,9629863-9629864,9629873 BKG: P628998			
Total Alkalinity to pH 4.5	10.04	10.94	9* (1)	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 32 PFAS Compounds
Batch number: 18149021

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C2-4:2-FTS	13C5-PFHxA	13C3-PFHxS
9629860	91	101	105	124*	103	106
9629861	80	152*	198*	160*	63	63
9629862	69	134	176*	139*	56	52
9629868	77	151*	186*	152*	63	60
9629873	74	140*	190*	150*	60	60
Blank	76	81	64	82	87	67
LCS	81	86	81	105	85	76
LCSD	76	85	68	107	82	69
Limits:	33-123	39-135	26-148	46-118	31-128	34-126
	13C4-PFHpA	13C2-6:2-FTS	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA
9629860	107	94	84	92	99	96
9629861	72	146*	74	81	118	72
9629862	61	124	61	68	95	65
9629868	68	138	70	82	115	73
9629873	70	130	66	74	102	66
Blank	78	78	77	73	95	76
LCS	86	98	79	81	84	79
LCSD	77	97	80	77	90	72
Limits:	35-126	39-140	43-112	43-115	32-134	40-115
	13C2-8:2-FTS	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA
9629860	106	82	92	87	97	85
9629861	89	78	77	85	76	52
9629862	83	70	72	75	69	52
9629868	92	72	76	79	74	57
9629873	85	66	69	78	70	52

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Quality Control Summary

Client Name: Golder Associates
Reported: 06/19/2018 10:51

Group Number: 1948018

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 32 PFAS Compounds
Batch number: 18149021

	13C2-8:2-FTS	d3-NMeFOSAA	13C7-PFUnDA	d5-NEtFOSAA	13C2-PFDoDA	13C2-PFTeDA
Blank	97	74	73	85	69	62
LCS	91	60	77	72	78	71
LCSD	96	75	80	83	70	68
Limits:	39-137	17-120	30-128	21-135	28-127	26-119
	13C8-PFOSA	d7-NMePFOSAE	d3-NMePFOSA	d9-NEtPFOSAE	d5-NEtPFOSA	
9629860	86	102	80	81	74	
9629861	14*	9*	22*	9*	2*	
9629862	14*	10*	23*	9*	3*	
9629868	7*	5*	22*	5*	2*	
9629873	9*	5*	21*	6*	1*	
Blank	59*	66*	46*	51*	41*	
LCS	66*	59*	19*	47*	19*	
LCSD	50*	46*	25*	38*	17*	
Limits:	70-130	70-130	70-130	70-130	70-130	

Analysis Name: HFPODA, NaDONA
Batch number: 18150005

	13C3-HFPODA	13C4-PFHpA
9629860	190*	135*
9629861	79	108
9629862	72	106
9629868	101	111
9629873	89	96
Blank	108	91
LCS	114	87
LCSD	104	93
Limits:	70-130	70-130

Analysis Name: 16 PFAS Compounds
Batch number: 18150011

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9629858	99	141*	293*	120	167*	155*
9629859	101	120	270*	112	159*	159*
9629863	97	172*	246*	89	89	101
9629864	96	162*	241*	87	85	92
9629865	113	212*	320*	91	100	106
9629866	103	154*	258*	115	138*	141*
9629867	116	208*	345*	98	107	113

*- Outside of specification

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Quality Control Summary

Client Name: Golder Associates
Reported: 06/19/2018 10:51

Group Number: 1948018

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 16 PFAS Compounds
Batch number: 18150011

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9629869	104	188*	278*	88	94	101
9629870	103	189*	299*	88	94	101
9629871	106	190*	275*	87	93	101
9629872	100	182*	245*	88	87	96
9629874	134*	263*	389*	108	124	130*
9629875	99	101	96	121	95	105
9629876	114	111	110	128	103	107
9629877	91	94	86	99	92	96
Blank	107	107	98	128	114	120
LCS	102	105	99	117	106	109
LCSD	103	106	99	110	104	105
Limits:	33-123	39-135	26-148	31-128	34-126	35-126
	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	d3-NMeFOSAA	13C7-PFUnDA
9629858	83	104	124	87	90	95
9629859	83	103	131	99	103	113
9629863	92	93	114	93	95	96
9629864	89	95	105	98	97	92
9629865	110	110	130	102	104	100
9629866	91	105	117	97	93	102
9629867	107	113	143*	111	121*	110
9629869	97	103	132	102	103	102
9629870	102	101	124	102	107	95
9629871	96	104	128	99	98	103
9629872	92	101	118	94	102	99
9629874	130*	136*	168*	130*	125*	128
9629875	103	101	129	105	112	109
9629876	115*	115	143*	117*	109	122
9629877	89	83	101	93	80	83
Blank	113*	104	117	107	101	111
LCS	106	102	110	110	111	119
LCSD	104	104	110	106	103	107
Limits:	43-112	43-115	32-134	40-115	17-120	30-128
	d5-NEtFOSAA	13C2-PFDODA	13C2-PFTeDA			
9629858	109	85	90			
9629859	127	117	111			
9629863	111	97	86			
9629864	106	97	86			
9629865	120	106	84			

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(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: Golder Associates
Reported: 06/19/2018 10:51

Group Number: 1948018

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 16 PFAS Compounds

Batch number: 18150011

	d5-NEtFOSAA	13C2-PFDdDA	13C2-PFTeDA
9629866	113	103	92
9629867	125	83	76
9629869	111	105	97
9629870	107	96	75
9629871	114	110	96
9629872	117	99	95
9629874	154*	133*	121*
9629875	109	113	112
9629876	128	120	123*
9629877	90	90	95
Blank	124	118	118
LCS	126	120	123*
LCSD	119	110	112
Limits:	21-135	28-127	26-119

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(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.

Environmental Analysis Request/Chain of Custody



Lancaster Laboratories
Environmental

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Acct. # 10253 Group # 1948018 Sample # 9629858-77

COC # 544169

Client Information				Matrix				Analysis Requested												For Lab Use Only																							
Client:				Acct. #:				Preservation Codes												FSC:																							
Project Name/ID:				PWSID #:																SCR#:																							
Project Manager:				P.O. #:																																							
Sampler:				Quote #:																																							
State where samples were collected:				For Compliance:																																							
Yes ☐ No ☐																																											
Sample Identification				Collected				Grab				Composite				Soil				Water				Other:				Total # of Containers				Preservation Codes				Remarks							
				Date Time												Soil				Water				Other:																			
SGPP-MH-23				05/24/18 1140				X								X				X				X				X				X				X				SD			
SGPP-MH-5				1135				X								X				X				X				X				X				X							
SGPP- Outfall 001				1015				X								X				X				X				X				X				X							
SW-MERR-201W-AK				0855				X								X				X				X				X				X				X							
SW-MERR-201W-1C				0945				X								X				X				X				X				X				X							
SW-MERR-301W-NS				1300				X								X				X				X				X				X				X							
SW-MERR-302W-NS				1348				X								X				X				X				X				X				X							
SW-MERR-302W-1C				1400				X								X				X				X				X				X				X							
SW-DB-101				05/24/18 1325				X								X				X				X				X				X				X							
SW-DB-102				05/24/18 1325				X								X				X				X				X				X				X							

Turnaround Time (TAT) Requested (please circle)		Relinquished by		Date		Time		Received by		Date		Time	
Standard		VTD		5/24/18		1600							
Rush													
(Rush TAT is subject to laboratory approval and surcharge.)													
Date results are needed:													
E-mail address: <u>rbennett@golder.com</u> <u>scott.drew@golder.com</u>													

Data Package Options (circle if required)				Relinquished by				Date				Time				Received by				Date				Time			
Type I (EPA Level 3 Equivalent/non-CLP)				Type VI (Raw Data Only)																							
Type III (Reduced non-CLP)				NJ DKQP TX TRRP-13																							
NYSDEC Category A or B				MA MCP CT RCP																							

EDD Required? (Yes No)		Relinquished by Commercial Carrier:	
If yes, format: _____		UPS _____ FedEx _____ Other _____	
Site-Specific QC (MS/MSD/Dup)? (Yes No)		Temperature upon receipt _____ °C	
(If yes, indicate QC sample and submit triplicate sample volume.)			

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Environmental Analysis Request/Chain of Custody



Lancaster Laboratories
Environmental

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Acct. # 10253 Group # 1948018 Sample # 9629858-77

COC # 544169

Client Information				Matrix			Analysis Requested										For Lab Use Only	
Client: <u>Golden Associates</u>		Acct. #:		☐ Soil ☐ Sediment ☐ Tissue ☐ Potable ☐ Ground ☒ Surface ☐ NPDES ☐ Other:	Total # of Containers	Preservation Codes										FSC: _____		
Project Name/ #: <u>SGPP / 166-8623</u>		PWSID #:														SCR#: _____		
Project Manager: <u>Jim Peace</u>		P.O. #:														Preservation Codes		
Sampler: <u>Scott Drew</u>		Quote #:														H=HCl T=Thiosulfate N=HNO ₃ B=NaOH S=H ₂ SO ₄ O=Other		
State where samples were collected: <u>NH</u>		For Compliance: Yes ☐ No ☐		Grab	Composite											Remarks		
Sample Identification		Collected																
Date	Time																	
SGPP-MH-23	05/24/18 1140	X			X	8	X										*Al, Sb, As, Ba, Be, Cd, Cr, Co, Cu, Pb, Hg, Ni, Se, Ag, Tl, V, Zn	
SGPP-MH-5	1135	X			X	8	X											
SGPP - Outfall 001	1015	X			X	10		X	X	X	X	X	X	X	X			
SW-MERR-201W-NS	0855	X			X	10		X	X	X	X	X	X	X	X			
SW-MERR-201W-1C	0945	X			X	10		X	X	X	X	X	X	X	X			
SW-MERR-301W-NS	1300	X			X	8	X		X		X	X	X	X	X			
SW-MERR-302W-NS	1345	X			X	8	X		X		X	X	X	X	X			
SW-MERR-302W-1C	1400	X			X	8	X		X		X	X	X	X	X			
SW-DB-101	05/24/18 1325	X			X	8	X		X		X	X	X	X	X			
SW-DB-102	05/24/18 1325	X			X	8	X		X		X	X	X	X	X			
Turnaround Time (TAT) Requested (please circle)				Relinquished by		Date	Time	Received by		Date	Time							
Standard				<u>[Signature]</u>		5/24/18	1800											
Rush																		
(Rush TAT is subject to laboratory approval and surcharge.)				Relinquished by		Date	Time	Received by		Date	Time							
Date results are needed:				Relinquished by		Date	Time	Received by		Date	Time							
E-mail address: <u>rbennett@golder.com</u> <u>scott_drew@golder.com</u>				Relinquished by		Date	Time	Received by		Date	Time							
Data Package Options (circle if required)				Relinquished by		Date	Time	Received by		Date	Time							
Type I (EPA Level 3)																		
Equivalent/non-CLP																		
Type VI (Raw Data Only)																		
Type III (Reduced non-CLP)																		
NJ DKQP TX TRRP-13																		
NYSDEC Category A or B																		
MA MCP CT RCP																		
EDD Required? <u>Yes</u> No						Relinquished by Commercial Carrier:												
If yes, format: _____						UPS _____ FedEx <u>X</u> Other _____												
Site-Specific QC (MS/MSD/Dup)? <u>Yes</u> No						Temperature upon receipt <u>18-48°C</u>												
(If yes, indicate QC sample and submit triplicate sample volume.)																		

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Environmental Analysis Request/Chain of Custody



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Acct. # 10253 Group # 1948018 Sample # 9629858-77

COC # 549870

Client Information				Matrix				Analysis Requested												For Lab Use Only			
Client: <u>Golder Associates</u>		Acct. #:		☐ Tissue ☐ Potable ☐ Ground ☒ Surface ☐ NPDES		Other: _____		Preservation Codes PFAS (16 compounds) PFAS (32 compounds) HPTODA, ADENA 6 metals (Co, Fe, Hg, Mn, Ni, Pb) 17* metals chloride, nitrate, nitrite, sulfate Bicarbonate alkalinity Sulfide Ammonia Nitrogen TSS												FSC: _____			
Project Name/ID: <u>SGPP/166-8623</u>		PWSID #:																		SCR#: _____			
Project Manager: <u>Jim Peace</u>		P.O. #:																					
Sampler: <u>Scott Drew</u>		Quote #:																					
State where samples were collected: <u>NA</u>		For Compliance: Yes ☐ No ☐																					
Sample Identification		Collected		Grab	Composite	Soil	Water	Other:	Total # of Containers													Preservation Codes H=HCl T=Thiosulfate N=HNO ₃ B=NaOH S=H ₂ SO ₄ O=Other	
		Date	Time																				
SW-MERR-101W-NS		05/24/18	8:55	X			X		10	X	X	X	X	X	X	X	X	Remarks *Al, Sb, As, Ba, Be, Cd, Cr, Co, Cu, Pb, Hg, Ni, Se, Ag, Ti, V, Zn					
SW-MERR-202W-NS			9:50	X			X		8	X		X	X	X	X	X							
SW-MERR-202W-1C			10:00	X			X		8	X		X	X	X	X	X							
SW-MERR-303W-NS			14:10	X			X		8	X		X	X	X	X	X							
SW-MERR-401W-NS			13:00	X			X		8	X		X	X	X	X	X							
SW-DB-102			13:25	X			X		8	X		X	X	X	X	X							
DUP-1			0855	X			X		10	X	X	X	X	X	X	X							
DUP-2			1300	X			X		8	X		X	X	X	X	X							
EB-1			1045	X			X		8	X		X	X	X	X	X							
FB-1		05/24/18	1055	X			X		2	X		X	X	X	X	X							
Turnaround Time (TAT) Requested (please circle) Standard <u>Standard</u> Rush (Rush TAT is subject to laboratory approval and surcharge.)				Relinquished by <u>[Signature]</u> Date <u>5/24/18</u> Time <u>1800</u>				Received by _____ Date _____ Time _____				Relinquished by _____ Date _____ Time _____				Received by _____ Date _____ Time _____							
Date results are needed: _____				Relinquished by _____ Date _____ Time _____				Received by _____ Date _____ Time _____				Relinquished by _____ Date _____ Time _____				Received by _____ Date _____ Time _____							
E-mail address: <u>rbennett@golder.com</u> <u>Scott_drew@golder.com</u>				Relinquished by _____ Date _____ Time _____				Received by _____ Date _____ Time _____				Relinquished by _____ Date _____ Time _____				Received by _____ Date _____ Time _____							
Data Package Options (circle if required) Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only) Type III (Reduced non-CLP) NJ DKQP TX TRRP-13 NYSDEC Category A or B MA MCP CT RCP				EDD Required? (Yes) <u>No</u> If yes, format: _____				Relinquished by Commercial Carrier: UPS _____ FedEx <u>X</u> Other _____				Temperature upon receipt <u>1.8-4.8C</u>											
Site-Specific QC (MS/MSD/Dup)? (Yes) <u>No</u> (If yes, indicate QC sample and submit triplicate sample volume.)																							

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Acct. # 10253 Group # 1948018 Sample # 9 62985-8-77

COC # 549580

[illegible]



Client: Golder Associates

SGPP/166-8623

Delivery and Receipt Information

Delivery Method:	<u>Fed Ex</u>	Arrival Timestamp:	<u>05/25/2018 10:10</u>
Number of Packages:	<u>6</u>	Number of Projects:	<u>1</u>
State/Province of Origin:	<u>NH</u>		

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:	2
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:	Yes		

Trip Blank Type(s): Unpreserved

Unpacked by Nicole Reiff (25684) at 13:56 on 05/25/2018

Samples Chilled Details: SGPP/166-8623

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

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	1.8	DT	Wet	Y	Bagged	N
2	DT146	2.5	DT	Wet	Y	Bagged	N
3	DT146	3.6	DT	Wet	Y	Bagged	N
4	DT146	4.2	DT	Wet	Y	Bagged	N
5	DT146	1.8	DT	Wet	Y	Bagged	N
6	DT146	4.8	DT	Wet	Y	Bagged	N

Container Quantity Discrepancy Details: SGPP/166-8623

Sample ID on COC	Container Qty. Received	Container Qty. on COC	Comments
SGPP-MH-23	2	8	
SGPP-Outfall001	11	10	
SW-MERR-201W-NS	11	10	
SW-MERR-101W-NC	11	10	

Explanation of Symbols and Abbreviations

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

BMQL	Below Minimum Quantitation Level	mg	milligram(s)
C	degrees Celsius	mL	milliliter(s)
cfu	colony forming units	MPN	Most Probable Number
CP Units	cobalt-chloroplatinate units	N.D.	non-detect
F	degrees Fahrenheit	ng	nanogram(s)
g	gram(s)	NTU	nephelometric turbidity units
IU	International Units	pg/L	picogram/liter
kg	kilogram(s)	RL	Reporting Limit
L	liter(s)	TNTC	Too Numerous To Count
lb.	pound(s)	µg	microgram(s)
m3	cubic meter(s)	µL	microliter(s)
meq	milliequivalents	umhos/cm	micromhos/cm
<	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.

This report shall not be reproduced except in full, without the written approval of the laboratory.

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.
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.



ANALYSIS REPORT

Prepared by:

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

Prepared for:

Golder Associates
670 North Commercial Street
Suite 103
Manchester NH 03101

Report Date: June 08, 2018 15:52

Project: SGPP-Merrimack NH

Account #: 10253
Group Number: 1945487
SDG: GOA16
PO Number: PROJECT: 166-8623
State of Sample Origin: NH

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at <http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>. To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To Golder Associates
Electronic Copy To Golder Associates
Electronic Copy To Environmental Standards
Electronic Copy To Environmental Standards
Electronic Copy To Golder Associates

Attn: Scott Drew
Attn: Ross Bennett
Attn: SaintGobain
Attn: Meg Michell
Attn: Jim Peace

Respectfully Submitted,



Nancy Jean Bornholm
Principal Specialist

(717) 556-7250



SAMPLE INFORMATION

<u>Client Sample Description</u>	<u>Sample Collection</u> <u>Date/Time</u>	<u>ELLE#</u>
SW-UBA-101 Grab Surface Water	05/18/2018 10:15	9618570
SW-UBA-102 Grab Surface Water	05/18/2018 09:35	9618571
DUP-1 Grab Surface Water	05/18/2018 10:15	9618572
EB-1 Grab Water	05/18/2018 11:10	9618573
FB-1 Grab Water	05/18/2018 10:55	9618574
TB-1 Water	05/18/2018 11:55	9618575

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

Project Name: SGPP-Merrimack NH
ELLE Group #: 1945487

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:

EPA 537 Version 1.1 Modified, LC/MS/MS Miscellaneous

Sample #s: 9618570, 9618571, 9618572

Reporting limits were raised due to interference from the sample matrix.

SW-846 6010C, Metals

Batch #: 181401063501 (Sample number(s): 9618570-9618573 UNSPK: P612461 BKG: P612461)

The recovery(ies) for the following analyte(s) in the MS and/or MSD exceeded the acceptance window indicating a positive bias: Calcium, Magnesium, Potassium, Sodium

EPA 300.0, Wet Chemistry

Batch #: 18139265112A (Sample number(s): 9618570-9618573 UNSPK: P618578 BKG: P618578)

The recovery(ies) for the following analyte(s) in the MS exceeded the acceptance window indicating a positive bias: Chloride

SM 2320 B-2011, Wet Chemistry

Batch #: 18141005202A (Sample number(s): 9618570-9618573 UNSPK: P618662 BKG: P618662-P618663)

The recovery(ies) for the following analyte(s) in the MS were below the acceptance window: Total Alkalinity to pH 4.5

Sample Description: SW-UBA-101 Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9618570
ELLE Group #: 1945487
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/19/2018 10:00
Collection Date/Time: 05/18/2018 10:15
SDG#: GOA16-01

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous		EPA 537 Version 1.1 Modified	ng/l	ng/l	ng/l	
14473	NEtFOSAA	2991-50-6	8.8 U	8.8	26	10
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	8.8 U	8.8	26	10
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonic Acid	375-73-5	5.3 J	2.6	8.8	10
14473	Perfluorobutanoic acid	375-22-4	32 J	18	53	10
14473	Perfluorodecanoic acid	335-76-2	8.8 U	8.8	18	10
14473	Perfluorododecanoic acid	307-55-1	2.6 U	2.6	8.8	10
14473	Perfluoroheptanoic acid	375-85-9	160	2.6	8.8	10
14473	Perfluorohexanesulfonic Acid	355-46-4	8.6 J	3.5	18	10
14473	Perfluorohexanoic acid	307-24-4	190	3.5	18	10
14473	Perfluorononanoic acid	375-95-1	5.6 J	3.5	18	10
14473	Perfluoro-Octanesulfonic Acid	1763-23-1	16 J	3.5	18	10
14473	Perfluorooctanoic acid	335-67-1	1,500	2.6	8.8	10
14473	Perfluoropentanoic acid	2706-90-3	100	18	53	10
14473	Perfluorotetradecanoic acid	376-06-7	2.6 U	2.6	8.8	10
14473	Perfluorotridecanoic acid	72629-94-8	2.6 U	2.6	8.8	10
14473	Perfluoroundecanoic acid	2058-94-8	3.5 U	3.5	18	10

Reporting limits were raised due to interference from the sample matrix.

Metals		SW-846 6010C	mg/l	mg/l	mg/l	
01743	Aluminum	7429-90-5	0.0894 U	0.0894	0.400	1
01750	Calcium	7440-70-2	17.9	0.0600	0.400	1
01754	Iron	7439-89-6	0.0805 U	0.0805	0.400	1
01757	Magnesium	7439-95-4	3.38	0.0374	0.200	1
07058	Manganese	7439-96-5	0.0162	0.0016	0.0100	1
01762	Potassium	7440-09-7	3.13	0.179	1.00	1
01767	Sodium	7440-23-5	94.7	0.321	2.00	1
07072	Zinc	7440-66-6	0.0065 U	0.0065	0.0400	1
		SW-846 6020A	mg/l	mg/l	mg/l	
06024	Antimony	7440-36-0	0.00045 U	0.00045	0.0020	1
06025	Arsenic	7440-38-2	0.00072 U	0.00072	0.0040	1
06026	Barium	7440-39-3	0.0330	0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000071 U	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015 U	0.00015	0.0010	1
06031	Chromium	7440-47-3	0.00087 U	0.00087	0.0040	1
06032	Cobalt	7440-48-4	0.00016 U	0.00016	0.0010	1
06033	Copper	7440-50-8	0.00069 J	0.00054	0.0040	1
06035	Lead	7439-92-1	0.00011 U	0.00011	0.0020	1
06039	Nickel	7440-02-0	0.0010 U	0.0010	0.0040	1

*=This limit was used in the evaluation of the final result

Sample Description: SW-UBA-101 Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9618570
ELLE Group #: 1945487
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submission Date/Time: 05/19/2018 10:00
Collection Date/Time: 05/18/2018 10:15
SDG#: GOA16-01

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Metals		SW-846 6020A	mg/l	mg/l	mg/l	
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	Thallium	7440-28-0	0.00012 U	0.00012	0.0010	1
06048	Vanadium	7440-62-2	0.00022 J	0.00021	0.0010	1
		SW-846 7470A	mg/l	mg/l	mg/l	
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry		EPA 300.0	mg/l	mg/l	mg/l	
00224	Chloride	16887-00-6	149	10.0	20.0	50
00368	Nitrate Nitrogen	14797-55-8	0.36 J	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	Sulfate	14808-79-8	8.9	1.5	5.0	5
		EPA 350.1	mg/l	mg/l	mg/l	
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
		SM 2320 B-2011	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	
12150	Total Alkalinity to pH 4.5	n.a.	20.3	1.7	5.0	1
12149	Bicarbonate Alkalinity	n.a.	20.3	1.7	5.0	1
		SM 2540 D-2011	mg/l	mg/l	mg/l	
13858	Total Suspended Solids	n.a.	1.04 J	1.00	3.00	1
		SM 4500-SO3 B-2011	mg/l	mg/l	mg/l	
00229	Sulfite	14265-45-3	1.5 U	1.5	5.0	1

The 40 CFR Part 136 requires that this analysis be performed immediately (within 15 minutes) upon sample collection. Because this was not possible, the result may not be used for reporting purposes.

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	16 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18144009	05/31/2018 00:33	Devon M Whooley	10
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18144009	05/24/2018 09:10	Courtney J Fatta	1
01743	Aluminum	SW-846 6010C	1	181401063501	05/22/2018 18:56	Elaine F Stoltzfus	1

*=This limit was used in the evaluation of the final result

Sample Description: SW-UBA-101 Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9618570
ELLE Group #: 1945487
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/19/2018 10:00
Collection Date/Time: 05/18/2018 10:15
SDG#: GOA16-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01750	Calcium	SW-846 6010C	1	181401063501	05/22/2018 18:56	Elaine F Stoltzfus	1
01754	Iron	SW-846 6010C	1	181401063501	05/22/2018 18:56	Elaine F Stoltzfus	1
01757	Magnesium	SW-846 6010C	1	181401063501	05/22/2018 18:56	Elaine F Stoltzfus	1
07058	Manganese	SW-846 6010C	1	181401063501	05/22/2018 18:56	Elaine F Stoltzfus	1
01762	Potassium	SW-846 6010C	1	181401063501	05/22/2018 18:56	Elaine F Stoltzfus	1
01767	Sodium	SW-846 6010C	1	181401063501	05/22/2018 18:56	Elaine F Stoltzfus	1
07072	Zinc	SW-846 6010C	1	181401063501	05/22/2018 18:56	Elaine F Stoltzfus	1
06024	Antimony	SW-846 6020A	1	181421063901A	05/23/2018 07:33	Choon Y Tian	1
06025	Arsenic	SW-846 6020A	1	181421063901A	05/23/2018 07:33	Choon Y Tian	1
06026	Barium	SW-846 6020A	1	181421063901D	05/23/2018 07:33	Choon Y Tian	1
06027	Beryllium	SW-846 6020A	1	181421063901A	05/23/2018 07:33	Choon Y Tian	1
06028	Cadmium	SW-846 6020A	1	181421063901A	05/23/2018 07:33	Choon Y Tian	1
06031	Chromium	SW-846 6020A	1	181421063901A	05/23/2018 07:33	Choon Y Tian	1
06032	Cobalt	SW-846 6020A	1	181421063901A	05/23/2018 07:33	Choon Y Tian	1
06033	Copper	SW-846 6020A	1	181421063901A	05/23/2018 07:33	Choon Y Tian	1
06035	Lead	SW-846 6020A	1	181421063901A	05/23/2018 07:33	Choon Y Tian	1
06039	Nickel	SW-846 6020A	1	181421063901A	05/23/2018 07:33	Choon Y Tian	1
06041	Selenium	SW-846 6020A	1	181421063901B	05/23/2018 07:33	Choon Y Tian	1
06042	Silver	SW-846 6020A	1	181421063901A	05/23/2018 07:33	Choon Y Tian	1
06045	Thallium	SW-846 6020A	1	181421063901A	05/23/2018 07:33	Choon Y Tian	1
06048	Vanadium	SW-846 6020A	1	181421063901A	05/23/2018 07:33	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	181420571302	05/23/2018 07:23	Damary Valentin	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	181401063501	05/21/2018 05:22	James L Mertz	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	181421063901	05/22/2018 15:30	JoElla L Rice	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	181420571302	05/22/2018 17:05	JoElla L Rice	1
00224	Chloride	EPA 300.0	1	18139265112A	05/22/2018 23:28	Zachary W Enck	50
00368	Nitrate Nitrogen	EPA 300.0	1	18139265112A	05/19/2018 17:14	Kianat Zamir	5
01506	Nitrite Nitrogen	EPA 300.0	1	18139265112A	05/19/2018 17:14	Kianat Zamir	5
00228	Sulfate	EPA 300.0	1	18139265112A	05/19/2018 17:14	Kianat Zamir	5
12892	Ammonia Nitrogen	EPA 350.1	1	18143107101B	05/23/2018 18:34	Samuel J Weaver	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-2011	1	18141005202A	05/22/2018 02:48	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-2011	1	18141005202A	05/22/2018 02:48	Jeremy L Bolf	1
13858	Total Suspended Solids	SM 2540 D-2011	1	18142385801A	05/22/2018 09:03	Amy L Hankins	1
00229	Sulfite	SM 4500-SO3 B-2011	1	18142022901A	05/22/2018 10:00	Michelle L Lalli	1

*=This limit was used in the evaluation of the final result

Sample Description: SW-UBA-102 Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9618571
ELLE Group #: 1945487
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submission Date/Time: 05/19/2018 10:00
Collection Date/Time: 05/18/2018 09:35
SDG#: GOA16-02

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous		EPA 537 Version 1.1 Modified	ng/l	ng/l	ng/l	
14473	NEtFOSAA	2991-50-6	12 U	12	37	10
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	12 U	12	37	10
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonic Acid	375-73-5	9.4 J	3.7	12	10
14473	Perfluorobutanoic acid	375-22-4	53 J	25	75	10
14473	Perfluorodecanoic acid	335-76-2	12 U	12	25	10
14473	Perfluorododecanoic acid	307-55-1	3.7 U	3.7	12	10
14473	Perfluoroheptanoic acid	375-85-9	140	3.7	12	10
14473	Perfluorohexanesulfonic Acid	355-46-4	6.8 J	5.0	25	10
14473	Perfluorohexanoic acid	307-24-4	200	5.0	25	10
14473	Perfluorononanoic acid	375-95-1	10 J	5.0	25	10
14473	Perfluoro-Octanesulfonic Acid	1763-23-1	30	5.0	25	10
14473	Perfluorooctanoic acid	335-67-1	1,200	3.7	12	10
14473	Perfluoropentanoic acid	2706-90-3	130	25	75	10
14473	Perfluorotetradecanoic acid	376-06-7	3.7 U	3.7	12	10
14473	Perfluorotridecanoic acid	72629-94-8	3.7 U	3.7	12	10
14473	Perfluoroundecanoic acid	2058-94-8	5.0 U	5.0	25	10

Reporting limits were raised due to interference from the sample matrix.

Metals		SW-846 6010C	mg/l	mg/l	mg/l	
01743	Aluminum	7429-90-5	0.292 J	0.0894	0.400	1
01750	Calcium	7440-70-2	19.5	0.0600	0.400	1
01754	Iron	7439-89-6	0.836	0.0805	0.400	1
01757	Magnesium	7439-95-4	4.45	0.0374	0.200	1
07058	Manganese	7439-96-5	0.100	0.0016	0.0100	1
01762	Potassium	7440-09-7	3.66	0.179	1.00	1
01767	Sodium	7440-23-5	84.4	0.321	2.00	1
07072	Zinc	7440-66-6	0.0152 J	0.0065	0.0400	1
		SW-846 6020A	mg/l	mg/l	mg/l	
06024	Antimony	7440-36-0	0.00045 U	0.00045	0.0020	1
06025	Arsenic	7440-38-2	0.00081 J	0.00072	0.0040	1
06026	Barium	7440-39-3	0.0851	0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000071 U	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015 U	0.00015	0.0010	1
06031	Chromium	7440-47-3	0.00089 J	0.00087	0.0040	1
06032	Cobalt	7440-48-4	0.00059 J	0.00016	0.0010	1
06033	Copper	7440-50-8	0.0013 J	0.00054	0.0040	1
06035	Lead	7439-92-1	0.0020	0.00011	0.0020	1
06039	Nickel	7440-02-0	0.0013 J	0.0010	0.0040	1

*=This limit was used in the evaluation of the final result

Sample Description: SW-UBA-102 Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9618571
ELLE Group #: 1945487
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submission Date/Time: 05/19/2018 10:00
Collection Date/Time: 05/18/2018 09:35
SDG#: GOA16-02

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Metals		SW-846 6020A	mg/l	mg/l	mg/l	
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	Thallium	7440-28-0	0.00012 U	0.00012	0.0010	1
06048	Vanadium	7440-62-2	0.0010	0.00021	0.0010	1
		SW-846 7470A	mg/l	mg/l	mg/l	
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry		EPA 300.0	mg/l	mg/l	mg/l	
00224	Chloride	16887-00-6	150	10.0	20.0	50
00368	Nitrate Nitrogen	14797-55-8	0.41 J	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	Sulfate	14808-79-8	7.5	1.5	5.0	5
		EPA 350.1	mg/l	mg/l	mg/l	
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
		SM 2320 B-2011	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	
12150	Total Alkalinity to pH 4.5	n.a.	25.0	1.7	5.0	1
12149	Bicarbonate Alkalinity	n.a.	25.0	1.7	5.0	1
		SM 2540 D-2011	mg/l	mg/l	mg/l	
13858	Total Suspended Solids	n.a.	7.46	1.00	3.00	1
		SM 4500-SO3 B-2011	mg/l	mg/l	mg/l	
00229	Sulfite	14265-45-3	1.5 U	1.5	5.0	1
The 40 CFR Part 136 requires that this analysis be performed immediately (within 15 minutes) upon sample collection. Because this was not possible, the result may not be used for reporting purposes.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	16 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18144009	05/31/2018 00:49	Devon M Whooley	10
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18144009	05/24/2018 09:10	Courtney J Fatta	1
01743	Aluminum	SW-846 6010C	1	181401063501	05/22/2018 18:59	Elaine F Stoltzfus	1

*=This limit was used in the evaluation of the final result

Sample Description: SW-UBA-102 Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9618571
ELLE Group #: 1945487
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/19/2018 10:00
Collection Date/Time: 05/18/2018 09:35
SDG#: GOA16-02

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01750	Calcium	SW-846 6010C	1	181401063501	05/22/2018 18:59	Elaine F Stoltzfus	1
01754	Iron	SW-846 6010C	1	181401063501	05/22/2018 18:59	Elaine F Stoltzfus	1
01757	Magnesium	SW-846 6010C	1	181401063501	05/22/2018 18:59	Elaine F Stoltzfus	1
07058	Manganese	SW-846 6010C	1	181401063501	05/22/2018 18:59	Elaine F Stoltzfus	1
01762	Potassium	SW-846 6010C	1	181401063501	05/22/2018 18:59	Elaine F Stoltzfus	1
01767	Sodium	SW-846 6010C	1	181401063501	05/22/2018 18:59	Elaine F Stoltzfus	1
07072	Zinc	SW-846 6010C	1	181401063501	05/22/2018 18:59	Elaine F Stoltzfus	1
06024	Antimony	SW-846 6020A	1	181421063901A	05/23/2018 07:42	Choon Y Tian	1
06025	Arsenic	SW-846 6020A	1	181421063901A	05/23/2018 07:42	Choon Y Tian	1
06026	Barium	SW-846 6020A	1	181421063901D	05/23/2018 07:42	Choon Y Tian	1
06027	Beryllium	SW-846 6020A	1	181421063901A	05/23/2018 07:42	Choon Y Tian	1
06028	Cadmium	SW-846 6020A	1	181421063901A	05/23/2018 07:42	Choon Y Tian	1
06031	Chromium	SW-846 6020A	1	181421063901A	05/23/2018 07:42	Choon Y Tian	1
06032	Cobalt	SW-846 6020A	1	181421063901A	05/23/2018 07:42	Choon Y Tian	1
06033	Copper	SW-846 6020A	1	181421063901A	05/23/2018 07:42	Choon Y Tian	1
06035	Lead	SW-846 6020A	1	181421063901A	05/23/2018 07:42	Choon Y Tian	1
06039	Nickel	SW-846 6020A	1	181421063901A	05/23/2018 07:42	Choon Y Tian	1
06041	Selenium	SW-846 6020A	1	181421063901B	05/23/2018 07:42	Choon Y Tian	1
06042	Silver	SW-846 6020A	1	181421063901A	05/23/2018 07:42	Choon Y Tian	1
06045	Thallium	SW-846 6020A	1	181421063901A	05/23/2018 07:42	Choon Y Tian	1
06048	Vanadium	SW-846 6020A	1	181421063901A	05/23/2018 07:42	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	181420571302	05/23/2018 07:45	Damary Valentin	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	181401063501	05/21/2018 05:22	James L Mertz	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	181421063901	05/22/2018 15:30	JoElla L Rice	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	181420571302	05/22/2018 17:05	JoElla L Rice	1
00224	Chloride	EPA 300.0	1	18139265112A	05/19/2018 18:24	Kianat Zamir	50
00368	Nitrate Nitrogen	EPA 300.0	1	18139265112A	05/19/2018 17:32	Kianat Zamir	5
01506	Nitrite Nitrogen	EPA 300.0	1	18139265112A	05/19/2018 17:32	Kianat Zamir	5
00228	Sulfate	EPA 300.0	1	18139265112A	05/19/2018 17:32	Kianat Zamir	5
12892	Ammonia Nitrogen	EPA 350.1	1	18143107101B	05/23/2018 18:36	Samuel J Weaver	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-2011	1	18141005202A	05/22/2018 02:35	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-2011	1	18141005202A	05/22/2018 02:35	Jeremy L Bolf	1
13858	Total Suspended Solids	SM 2540 D-2011	1	18142385801A	05/22/2018 09:03	Amy L Hankins	1
00229	Sulfite	SM 4500-SO3 B-2011	1	18142022901A	05/22/2018 10:00	Michelle L Lalli	1

*=This limit was used in the evaluation of the final result

Sample Description: DUP-1 Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9618572
ELLE Group #: 1945487
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/19/2018 10:00
Collection Date/Time: 05/18/2018 10:15
SDG#: GOA16-03FD

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous		EPA 537 Version 1.1 Modified	ng/l	ng/l	ng/l	
14473	NEtFOSAA	2991-50-6	9.1 U	9.1	27	10
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	9.1 U	9.1	27	10
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonic Acid	375-73-5	5.1 J	2.7	9.1	10
14473	Perfluorobutanoic acid	375-22-4	35 J	18	55	10
14473	Perfluorodecanoic acid	335-76-2	9.1 U	9.1	18	10
14473	Perfluorododecanoic acid	307-55-1	2.7 U	2.7	9.1	10
14473	Perfluoroheptanoic acid	375-85-9	150	2.7	9.1	10
14473	Perfluorohexanesulfonic Acid	355-46-4	8.8 J	3.7	18	10
14473	Perfluorohexanoic acid	307-24-4	170	3.7	18	10
14473	Perfluorononanoic acid	375-95-1	6.6 J	3.7	18	10
14473	Perfluoro-Octanesulfonic Acid	1763-23-1	16 J	3.7	18	10
14473	Perfluorooctanoic acid	335-67-1	1,600	2.7	9.1	10
14473	Perfluoropentanoic acid	2706-90-3	100	18	55	10
14473	Perfluorotetradecanoic acid	376-06-7	2.7 U	2.7	9.1	10
14473	Perfluorotridecanoic acid	72629-94-8	2.7 U	2.7	9.1	10
14473	Perfluoroundecanoic acid	2058-94-8	3.7 U	3.7	18	10

Reporting limits were raised due to interference from the sample matrix.

Metals		SW-846 6010C	mg/l	mg/l	mg/l	
01743	Aluminum	7429-90-5	0.0894 U	0.0894	0.400	1
01750	Calcium	7440-70-2	17.8	0.0600	0.400	1
01754	Iron	7439-89-6	0.0805 U	0.0805	0.400	1
01757	Magnesium	7439-95-4	3.31	0.0374	0.200	1
07058	Manganese	7439-96-5	0.0160	0.0016	0.0100	1
01762	Potassium	7440-09-7	2.92	0.179	1.00	1
01767	Sodium	7440-23-5	92.7	0.321	2.00	1
07072	Zinc	7440-66-6	0.0065 U	0.0065	0.0400	1
		SW-846 6020A	mg/l	mg/l	mg/l	
06024	Antimony	7440-36-0	0.00045 U	0.00045	0.0020	1
06025	Arsenic	7440-38-2	0.00072 U	0.00072	0.0040	1
06026	Barium	7440-39-3	0.0339	0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000071 U	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015 U	0.00015	0.0010	1
06031	Chromium	7440-47-3	0.00087 U	0.00087	0.0040	1
06032	Cobalt	7440-48-4	0.00016 U	0.00016	0.0010	1
06033	Copper	7440-50-8	0.00093 J	0.00054	0.0040	1
06035	Lead	7439-92-1	0.00011 U	0.00011	0.0020	1
06039	Nickel	7440-02-0	0.0010 U	0.0010	0.0040	1

*=This limit was used in the evaluation of the final result

Sample Description: DUP-1 Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9618572
ELLE Group #: 1945487
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/19/2018 10:00
Collection Date/Time: 05/18/2018 10:15
SDG#: GOA16-03FD

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Metals						
		SW-846 6020A	mg/l	mg/l	mg/l	
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	Thallium	7440-28-0	0.00012 U	0.00012	0.0010	1
06048	Vanadium	7440-62-2	0.00021 U	0.00021	0.0010	1
		SW-846 7470A	mg/l	mg/l	mg/l	
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry						
		EPA 300.0	mg/l	mg/l	mg/l	
00224	Chloride	16887-00-6	162	20.0	40.0	100
00368	Nitrate Nitrogen	14797-55-8	0.38 J	0.25	0.50	5
01506	Nitrite Nitrogen	14797-65-0	0.25 U	0.25	0.50	5
00228	Sulfate	14808-79-8	9.8	1.5	5.0	5
		EPA 350.1	mg/l	mg/l	mg/l	
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
		SM 2320 B-2011	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	
12150	Total Alkalinity to pH 4.5	n.a.	17.6	1.7	5.0	1
12149	Bicarbonate Alkalinity	n.a.	17.6	1.7	5.0	1
		SM 2540 D-2011	mg/l	mg/l	mg/l	
13858	Total Suspended Solids	n.a.	1.00 U	1.00	3.00	1
		SM 4500-SO3 B-2011	mg/l	mg/l	mg/l	
00229	Sulfite	14265-45-3	1.5 U	1.5	5.0	1
The 40 CFR Part 136 requires that this analysis be performed immediately (within 15 minutes) upon sample collection. Because this was not possible, the result may not be used for reporting purposes.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	16 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18144009	05/31/2018 01:04	Devon M Whooley	10
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18144009	05/24/2018 09:10	Courtney J Fatta	1
01743	Aluminum	SW-846 6010C	1	181401063501	05/22/2018 19:02	Elaine F Stoltzfus	1

*=This limit was used in the evaluation of the final result

Sample Description: DUP-1 Grab Surface Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9618572
ELLE Group #: 1945487
Matrix: Surface Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/19/2018 10:00
Collection Date/Time: 05/18/2018 10:15
SDG#: GOA16-03FD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01750	Calcium	SW-846 6010C	1	181401063501	05/22/2018 19:02	Elaine F Stoltzfus	1
01754	Iron	SW-846 6010C	1	181401063501	05/22/2018 19:02	Elaine F Stoltzfus	1
01757	Magnesium	SW-846 6010C	1	181401063501	05/22/2018 19:02	Elaine F Stoltzfus	1
07058	Manganese	SW-846 6010C	1	181401063501	05/22/2018 19:02	Elaine F Stoltzfus	1
01762	Potassium	SW-846 6010C	1	181401063501	05/22/2018 19:02	Elaine F Stoltzfus	1
01767	Sodium	SW-846 6010C	1	181401063501	05/22/2018 19:02	Elaine F Stoltzfus	1
07072	Zinc	SW-846 6010C	1	181401063501	05/22/2018 19:02	Elaine F Stoltzfus	1
06024	Antimony	SW-846 6020A	1	181421063901A	05/23/2018 07:45	Choon Y Tian	1
06025	Arsenic	SW-846 6020A	1	181421063901A	05/23/2018 07:45	Choon Y Tian	1
06026	Barium	SW-846 6020A	1	181421063901D	05/23/2018 07:45	Choon Y Tian	1
06027	Beryllium	SW-846 6020A	1	181421063901A	05/23/2018 07:45	Choon Y Tian	1
06028	Cadmium	SW-846 6020A	1	181421063901A	05/23/2018 07:45	Choon Y Tian	1
06031	Chromium	SW-846 6020A	1	181421063901A	05/23/2018 07:45	Choon Y Tian	1
06032	Cobalt	SW-846 6020A	1	181421063901A	05/23/2018 07:45	Choon Y Tian	1
06033	Copper	SW-846 6020A	1	181421063901A	05/23/2018 07:45	Choon Y Tian	1
06035	Lead	SW-846 6020A	1	181421063901A	05/23/2018 07:45	Choon Y Tian	1
06039	Nickel	SW-846 6020A	1	181421063901A	05/23/2018 07:45	Choon Y Tian	1
06041	Selenium	SW-846 6020A	1	181421063901B	05/23/2018 07:45	Choon Y Tian	1
06042	Silver	SW-846 6020A	1	181421063901A	05/23/2018 07:45	Choon Y Tian	1
06045	Thallium	SW-846 6020A	1	181421063901A	05/23/2018 07:45	Choon Y Tian	1
06048	Vanadium	SW-846 6020A	1	181421063901A	05/23/2018 07:45	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	181420571302	05/23/2018 07:47	Damary Valentin	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	181401063501	05/21/2018 05:22	James L Mertz	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	181421063901	05/22/2018 15:30	JoElla L Rice	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	181420571302	05/22/2018 17:05	JoElla L Rice	1
00224	Chloride	EPA 300.0	1	18139265112A	05/19/2018 18:59	Kianat Zamir	100
00368	Nitrate Nitrogen	EPA 300.0	1	18139265112A	05/19/2018 18:41	Kianat Zamir	5
01506	Nitrite Nitrogen	EPA 300.0	1	18139265112A	05/19/2018 18:41	Kianat Zamir	5
00228	Sulfate	EPA 300.0	1	18139265112A	05/19/2018 18:41	Kianat Zamir	5
12892	Ammonia Nitrogen	EPA 350.1	1	18143107101B	05/23/2018 18:41	Samuel J Weaver	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-2011	1	18141005202A	05/22/2018 02:41	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-2011	1	18141005202A	05/22/2018 02:41	Jeremy L Bolf	1
13858	Total Suspended Solids	SM 2540 D-2011	1	18142385801A	05/22/2018 09:03	Amy L Hankins	1
00229	Sulfite	SM 4500-SO3 B-2011	1	18142022901A	05/22/2018 10:00	Michelle L Lalli	1

*=This limit was used in the evaluation of the final result

Sample Description: EB-1 Grab Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9618573
ELLE Group #: 1945487
Matrix: Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/19/2018 10:00
Collection Date/Time: 05/18/2018 11:10
SDG#: GOA16-04EB

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous EPA 537 Version 1.1 Modified						
14473	NEtFOSAA	2991-50-6	0.87 U	0.87	2.6	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.87 U	0.87	2.6	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonic Acid	375-73-5	0.26 U	0.26	0.87	1
14473	Perfluorobutanoic acid	375-22-4	1.7 U	1.7	5.2	1
14473	Perfluorodecanoic acid	335-76-2	0.87 U	0.87	1.7	1
14473	Perfluorododecanoic acid	307-55-1	0.26 U	0.26	0.87	1
14473	Perfluoroheptanoic acid	375-85-9	0.26 U	0.26	0.87	1
14473	Perfluorohexanesulfonic Acid	355-46-4	0.35 U	0.35	1.7	1
14473	Perfluorohexanoic acid	307-24-4	0.35 U	0.35	1.7	1
14473	Perfluorononanoic acid	375-95-1	0.35 U	0.35	1.7	1
14473	Perfluoro-Octanesulfonic Acid	1763-23-1	0.35 U	0.35	1.7	1
14473	Perfluorooctanoic acid	335-67-1	0.26 U	0.26	0.87	1
14473	Perfluoropentanoic acid	2706-90-3	1.7 U	1.7	5.2	1
14473	Perfluorotetradecanoic acid	376-06-7	0.26 U	0.26	0.87	1
14473	Perfluorotridecanoic acid	72629-94-8	0.26 U	0.26	0.87	1
14473	Perfluoroundecanoic acid	2058-94-8	0.35 U	0.35	1.7	1
Metals SW-846 6010C						
01743	Aluminum	7429-90-5	0.0894 U	0.0894	0.400	1
01750	Calcium	7440-70-2	0.0600 UK2	0.0600	0.400	1
01754	Iron	7439-89-6	0.0805 U	0.0805	0.400	1
01757	Magnesium	7439-95-4	0.0374 U	0.0374	0.200	1
07058	Manganese	7439-96-5	0.0018 J	0.0016	0.0100	1
01762	Potassium	7440-09-7	0.179 U	0.179	1.00	1
01767	Sodium	7440-23-5	0.321 UK2	0.321	2.00	1
07072	Zinc	7440-66-6	0.0065 U	0.0065	0.0400	1
SW-846 6020A						
06024	Antimony	7440-36-0	0.00045 U	0.00045	0.0020	1
06025	Arsenic	7440-38-2	0.00072 U	0.00072	0.0040	1
06026	Barium	7440-39-3	0.00072 U	0.00072	0.0040	1
06027	Beryllium	7440-41-7	0.000071 U	0.000071	0.0010	1
06028	Cadmium	7440-43-9	0.00015 U	0.00015	0.0010	1
06031	Chromium	7440-47-3	0.00087 U	0.00087	0.0040	1
06032	Cobalt	7440-48-4	0.00016 U	0.00016	0.0010	1
06033	Copper	7440-50-8	0.00054 U	0.00054	0.0040	1
06035	Lead	7439-92-1	0.00011 U	0.00011	0.0020	1
06039	Nickel	7440-02-0	0.0010 U	0.0010	0.0040	1
06041	Selenium	7782-49-2	0.00050 U	0.00050	0.0040	1

*=This limit was used in the evaluation of the final result

Sample Description: EB-1 Grab Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9618573
ELLE Group #: 1945487
Matrix: Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/19/2018 10:00
Collection Date/Time: 05/18/2018 11:10
SDG#: GOA16-04EB

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
Metals						
		SW-846 6020A	mg/l	mg/l	mg/l	
06042	Silver	7440-22-4	0.00015 U	0.00015	0.0010	1
06045	Thallium	7440-28-0	0.00012 U	0.00012	0.0010	1
06048	Vanadium	7440-62-2	0.00021 U	0.00021	0.0010	1
		SW-846 7470A	mg/l	mg/l	mg/l	
00259	Mercury	7439-97-6	0.000050 U	0.000050	0.00020	1
Wet Chemistry						
		EPA 300.0	mg/l	mg/l	mg/l	
00224	Chloride	16887-00-6	0.20 U	0.20	0.40	1
00368	Nitrate Nitrogen	14797-55-8	0.050 U	0.050	0.10	1
01506	Nitrite Nitrogen	14797-65-0	0.050 U	0.050	0.10	1
00228	Sulfate	14808-79-8	0.30 U	0.30	1.0	1
		EPA 350.1	mg/l	mg/l	mg/l	
12892	Ammonia Nitrogen	7664-41-7	0.050 U	0.050	0.10	1
		SM 2320 B-2011	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	
12150	Total Alkalinity to pH 4.5	n.a.	1.7 U	1.7	5.0	1
12149	Bicarbonate Alkalinity	n.a.	1.7 U	1.7	5.0	1
		SM 2540 D-2011	mg/l	mg/l	mg/l	
13858	Total Suspended Solids	n.a.	1.00 U	1.00	3.00	1
		SM 4500-SO3 B-2011	mg/l	mg/l	mg/l	
00229	Sulfite	14265-45-3	1.5 U	1.5	5.0	1
The 40 CFR Part 136 requires that this analysis be performed immediately (within 15 minutes) upon sample collection. Because this was not possible, the result may not be used for reporting purposes.						

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	16 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18144009	05/31/2018 01:20	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18144009	05/24/2018 09:10	Courtney J Fatta	1
01743	Aluminum	SW-846 6010C	1	181401063501	05/22/2018 19:05	Elaine F Stoltzfus	1
01750	Calcium	SW-846 6010C	1	181401063501	05/22/2018 19:05	Elaine F Stoltzfus	1

*=This limit was used in the evaluation of the final result

Sample Description: EB-1 Grab Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9618573
ELLE Group #: 1945487
Matrix: Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/19/2018 10:00
Collection Date/Time: 05/18/2018 11:10
SDG#: GOA16-04EB

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01754	Iron	SW-846 6010C	1	181401063501	05/22/2018 19:05	Elaine F Stoltzfus	1
01757	Magnesium	SW-846 6010C	1	181401063501	05/22/2018 19:05	Elaine F Stoltzfus	1
07058	Manganese	SW-846 6010C	1	181401063501	05/22/2018 19:05	Elaine F Stoltzfus	1
01762	Potassium	SW-846 6010C	1	181401063501	05/22/2018 19:05	Elaine F Stoltzfus	1
01767	Sodium	SW-846 6010C	1	181401063501	05/22/2018 19:05	Elaine F Stoltzfus	1
07072	Zinc	SW-846 6010C	1	181401063501	05/22/2018 19:05	Elaine F Stoltzfus	1
06024	Antimony	SW-846 6020A	1	181421063901A	05/23/2018 07:57	Choon Y Tian	1
06025	Arsenic	SW-846 6020A	1	181421063901A	05/23/2018 07:57	Choon Y Tian	1
06026	Barium	SW-846 6020A	1	181421063901D	05/23/2018 07:57	Choon Y Tian	1
06027	Beryllium	SW-846 6020A	1	181421063901A	05/23/2018 07:57	Choon Y Tian	1
06028	Cadmium	SW-846 6020A	1	181421063901A	05/23/2018 07:57	Choon Y Tian	1
06031	Chromium	SW-846 6020A	1	181421063901A	05/23/2018 07:57	Choon Y Tian	1
06032	Cobalt	SW-846 6020A	1	181421063901A	05/23/2018 07:57	Choon Y Tian	1
06033	Copper	SW-846 6020A	1	181421063901A	05/23/2018 07:57	Choon Y Tian	1
06035	Lead	SW-846 6020A	1	181421063901A	05/23/2018 07:57	Choon Y Tian	1
06039	Nickel	SW-846 6020A	1	181421063901A	05/23/2018 07:57	Choon Y Tian	1
06041	Selenium	SW-846 6020A	1	181421063901B	05/23/2018 07:57	Choon Y Tian	1
06042	Silver	SW-846 6020A	1	181421063901A	05/23/2018 07:57	Choon Y Tian	1
06045	Thallium	SW-846 6020A	1	181421063901A	05/23/2018 07:57	Choon Y Tian	1
06048	Vanadium	SW-846 6020A	1	181421063901A	05/23/2018 07:57	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	181420571302	05/23/2018 07:49	Damary Valentin	1
10635	ICP-WW, 3005A (tot rec) - U4	SW-846 3005A	1	181401063501	05/21/2018 05:22	James L Mertz	1
10639	ICPMS - Water, 3020A - U4	SW-846 3020A	1	181421063901	05/22/2018 15:30	JoElla L Rice	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	181420571302	05/22/2018 17:05	JoElla L Rice	1
00224	Chloride	EPA 300.0	1	18139265112A	05/19/2018 19:16	Kianat Zamir	1
00368	Nitrate Nitrogen	EPA 300.0	1	18139265112A	05/19/2018 19:16	Kianat Zamir	1
01506	Nitrite Nitrogen	EPA 300.0	1	18139265112A	05/19/2018 19:16	Kianat Zamir	1
00228	Sulfate	EPA 300.0	1	18139265112A	05/19/2018 19:16	Kianat Zamir	1
12892	Ammonia Nitrogen	EPA 350.1	1	18143107101B	05/23/2018 18:43	Samuel J Weaver	1
12150	Total Alkalinity to pH 4.5	SM 2320 B-2011	1	18141005202A	05/22/2018 02:28	Jeremy L Bolf	1
12149	Bicarbonate Alkalinity	SM 2320 B-2011	1	18141005202A	05/22/2018 02:28	Jeremy L Bolf	1
13858	Total Suspended Solids	SM 2540 D-2011	1	18142385801A	05/22/2018 09:03	Amy L Hankins	1
00229	Sulfite	SM 4500-SO3 B-2011	1	18142022901A	05/22/2018 10:00	Michelle L Lalli	1

*=This limit was used in the evaluation of the final result

Sample Description: FB-1 Grab Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9618574
ELLE Group #: 1945487
Matrix: Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/19/2018 10:00
Collection Date/Time: 05/18/2018 10:55
SDG#: GOA16-05FB

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous		EPA 537 Version 1.1 Modified	ng/l	ng/l	ng/l	
14473	NEtFOSAA	2991-50-6	0.88 U	0.88	2.6	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.88 U	0.88	2.6	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonic Acid	375-73-5	0.26 U	0.26	0.88	1
14473	Perfluorobutanoic acid	375-22-4	1.8 U	1.8	5.3	1
14473	Perfluorodecanoic acid	335-76-2	0.88 U	0.88	1.8	1
14473	Perfluorododecanoic acid	307-55-1	0.26 U	0.26	0.88	1
14473	Perfluoroheptanoic acid	375-85-9	0.26 U	0.26	0.88	1
14473	Perfluorohexanesulfonic Acid	355-46-4	0.35 U	0.35	1.8	1
14473	Perfluorohexanoic acid	307-24-4	0.35 U	0.35	1.8	1
14473	Perfluorononanoic acid	375-95-1	0.35 U	0.35	1.8	1
14473	Perfluoro-Octanesulfonic Acid	1763-23-1	0.35 U	0.35	1.8	1
14473	Perfluorooctanoic acid	335-67-1	0.26 U	0.26	0.88	1
14473	Perfluoropentanoic acid	2706-90-3	1.8 U	1.8	5.3	1
14473	Perfluorotetradecanoic acid	376-06-7	0.26 U	0.26	0.88	1
14473	Perfluorotridecanoic acid	72629-94-8	0.26 U	0.26	0.88	1
14473	Perfluoroundecanoic acid	2058-94-8	0.35 U	0.35	1.8	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	16 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18144009	05/31/2018 01:35	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18144009	05/24/2018 09:10	Courtney J Fatta	1

*=This limit was used in the evaluation of the final result

Sample Description: TB-1 Water
SGPP/166-8623

Golder Associates
ELLE Sample #: WW 9618575
ELLE Group #: 1945487
Matrix: Water

Project Name: SGPP-Merrimack NH

Submittal Date/Time: 05/19/2018 10:00
Collection Date/Time: 05/18/2018 11:55
SDG#: GOA16-06TB

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
LC/MS/MS Miscellaneous		EPA 537 Version 1.1 Modified	ng/l	ng/l	ng/l	
14473	NEtFOSAA	2991-50-6	0.90 U	0.90	2.7	1
	NEtFOSAA is the acronym for N-ethyl perfluorooctanesulfonamidoacetic Acid.					
14473	NMeFOSAA	2355-31-9	0.90 U	0.90	2.7	1
	NMeFOSAA is the acronym for N-methyl perfluorooctanesulfonamidoacetic Acid.					
14473	Perfluorobutanesulfonic Acid	375-73-5	0.27 U	0.27	0.90	1
14473	Perfluorobutanoic acid	375-22-4	1.8 U	1.8	5.4	1
14473	Perfluorodecanoic acid	335-76-2	0.90 U	0.90	1.8	1
14473	Perfluorododecanoic acid	307-55-1	0.27 U	0.27	0.90	1
14473	Perfluoroheptanoic acid	375-85-9	0.27 U	0.27	0.90	1
14473	Perfluorohexanesulfonic Acid	355-46-4	0.36 U	0.36	1.8	1
14473	Perfluorohexanoic acid	307-24-4	0.36 U	0.36	1.8	1
14473	Perfluorononanoic acid	375-95-1	0.36 U	0.36	1.8	1
14473	Perfluoro-Octanesulfonic Acid	1763-23-1	0.36 U	0.36	1.8	1
14473	Perfluorooctanoic acid	335-67-1	0.27 U	0.27	0.90	1
14473	Perfluoropentanoic acid	2706-90-3	1.8 U	1.8	5.4	1
14473	Perfluorotetradecanoic acid	376-06-7	0.27 U	0.27	0.90	1
14473	Perfluorotridecanoic acid	72629-94-8	0.27 U	0.27	0.90	1
14473	Perfluoroundecanoic acid	2058-94-8	0.36 U	0.36	1.8	1

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
14473	16 PFAS Compounds	EPA 537 Version 1.1 Modified	1	18144009	05/31/2018 01:51	Devon M Whooley	1
14091	PFAS Water Prep	EPA 537 Version 1.1 Modified	1	18144009	05/24/2018 09:10	Courtney J Fatta	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: Golder Associates
Reported: 06/08/2018 15:52

Group Number: 1945487

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 ng/l	MDL** ng/l	LOQ ng/l
Batch number: 18144009	Sample number(s): 9618570-9618575		
NEtFOSAA	1.0 U	1.0	3.0
NMeFOSAA	1.0 U	1.0	3.0
Perfluorobutanesulfonic Acid	0.30 U	0.30	1.0
Perfluorobutanoic acid	2.0 U	2.0	6.0
Perfluorodecanoic acid	1.0 U	1.0	2.0
Perfluorododecanoic acid	0.30 U	0.30	1.0
Perfluoroheptanoic acid	0.30 U	0.30	1.0
Perfluorohexanesulfonic Acid	0.40 U	0.40	2.0
Perfluorohexanoic acid	0.40 U	0.40	2.0
Perfluorononanoic acid	0.40 U	0.40	2.0
Perfluoro-Octanesulfonic Acid	0.40 U	0.40	2.0
Perfluorooctanoic acid	0.30 U	0.30	1.0
Perfluoropentanoic acid	2.0 U	2.0	6.0
Perfluorotetradecanoic acid	0.30 U	0.30	1.0
Perfluorotridecanoic acid	0.30 U	0.30	1.0
Perfluoroundecanoic acid	0.40 U	0.40	2.0
	mg/l	mg/l	mg/l
Batch number: 181401063501	Sample number(s): 9618570-9618573		
Aluminum	0.0894 U	0.0894	0.400
Calcium	0.0600 U	0.0600	0.400
Iron	0.0805 U	0.0805	0.400
Magnesium	0.0374 U	0.0374	0.200
Manganese	0.0016 U	0.0016	0.0100
Potassium	0.179 U	0.179	1.00
Sodium	0.321 U	0.321	2.00
Zinc	0.0065 U	0.0065	0.0400
Batch number: 181420571302	Sample number(s): 9618570-9618573		
Mercury	0.000050 U	0.000050	0.00020
Batch number: 181421063901A	Sample number(s): 9618570-9618573		
Antimony	0.00045 U	0.00045	0.0020
Arsenic	0.00072 U	0.00072	0.0040
Beryllium	0.000071 U	0.000071	0.0010
Cadmium	0.00015 U	0.00015	0.0010
Chromium	0.00087 U	0.00087	0.0040
Cobalt	0.00016 U	0.00016	0.0010
Copper	0.00054 U	0.00054	0.0040
Lead	0.00011 U	0.00011	0.0020

*- Outside of specification

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(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: Golder Associates
Reported: 06/08/2018 15:52

Group Number: 1945487

Method Blank (continued)

Analysis Name	Result	MDL**	LOQ
	mg/l	mg/l	mg/l
Nickel	0.0010 U	0.0010	0.0040
Silver	0.00015 U	0.00015	0.0010
Thallium	0.00012 U	0.00012	0.0010
Vanadium	0.00021 U	0.00021	0.0010
Batch number: 181421063901B	Sample number(s): 9618570-9618573		
Selenium	0.00050 U	0.00050	0.0040
Batch number: 181421063901D	Sample number(s): 9618570-9618573		
Barium	0.00072 U	0.00072	0.0040
Batch number: 18139265112A	Sample number(s): 9618570-9618573		
Chloride	0.20 U	0.20	0.40
Nitrate Nitrogen	0.050 U	0.050	0.10
Nitrite Nitrogen	0.050 U	0.050	0.10
Sulfate	0.30 U	0.30	1.0
Batch number: 18143107101B	Sample number(s): 9618570-9618573		
Ammonia Nitrogen	0.050 U	0.050	0.10
Batch number: 18142022901A	Sample number(s): 9618570-9618573		
Sulfite	1.5 U	1.5	5.0
Batch number: 18142385801A	Sample number(s): 9618570-9618573		
Total Suspended Solids	1.00 U	1.00	3.00
	mg/l as CaCO ₃	mg/l as CaCO ₃	mg/l as CaCO ₃
Batch number: 18141005202A	Sample number(s): 9618570-9618573		
Total Alkalinity to pH 4.5	1.7 U	1.7	5.0

LCS/LCSD

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
Batch number: 18144009	Sample number(s): 9618570-9618575								
NEtFOSAA	5.44	5.34			98		55-169		
NMeFOSAA	5.44	5.13			94		62-167		
Perfluorobutanesulfonic Acid	4.81	4.97			103		73-128		
Perfluorobutanoic acid	5.44	5.56			102		74-142		
Perfluorodecanoic acid	5.44	6.20			114		69-148		
Perfluorododecanoic acid	5.44	5.76			106		75-136		
Perfluoroheptanoic acid	5.44	5.99			110		76-140		
Perfluorohexanesulfonic Acid	5.14	4.84			94		71-131		

*- Outside of specification

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Quality Control Summary

Client Name: Golder Associates
Reported: 06/08/2018 15:52

Group Number: 1945487

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
Perfluorohexanoic acid	5.44	6.00			110		75-135		
Perfluorononanoic acid	5.44	6.25			115		72-148		
Perfluoro-Octanesulfonic Acid	5.20	4.82			93		67-138		
Perfluorooctanoic acid	5.44	5.72			105		72-138		
Perfluoropentanoic acid	5.44	5.52			102		74-134		
Perfluorotetradecanoic acid	5.44	5.89			108		74-135		
Perfluorotridecanoic acid	5.44	5.71			105		61-145		
Perfluoroundecanoic acid	5.44	5.86			108		75-146		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 181401063501	Sample number(s): 9618570-9618573								
Aluminum	2.00	1.82			91		80-120		
Calcium	4.00	4.18			105		88-112		
Iron	1.00	1.06			106		80-114		
Magnesium	2.00	2.11			105		88-114		
Manganese	0.500	0.524			105		90-112		
Potassium	10	10.62			106		88-112		
Sodium	10	10.78			108		87-112		
Zinc	0.500	0.525			105		89-111		
Batch number: 181420571302	Sample number(s): 9618570-9618573								
Mercury	0.00100	0.000825			83		80-114		
Batch number: 181421063901A	Sample number(s): 9618570-9618573								
Antimony	0.00600	0.00605			101		80-120		
Arsenic	0.0100	0.0102			102		80-120		
Beryllium	0.00400	0.00419			105		90-112		
Cadmium	0.00500	0.00485			97		84-120		
Chromium	0.0500	0.0520			104		90-112		
Cobalt	0.250	0.243			97		86-113		
Copper	0.0500	0.0519			104		89-120		
Lead	0.0150	0.0158			105		90-110		
Nickel	0.0500	0.0528			106		90-114		
Silver	0.0500	0.0492			98		88-113		
Thallium	0.00200	0.00235			117		80-120		
Vanadium	0.0500	0.0492			98		90-112		
Batch number: 181421063901B	Sample number(s): 9618570-9618573								
Selenium	0.0100	0.0109			109		90-113		
Batch number: 181421063901D	Sample number(s): 9618570-9618573								
Barium	0.0500	0.0495			99		80-120		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 18139265112A	Sample number(s): 9618570-9618573								

*- Outside of specification

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Quality Control Summary

Client Name: Golder Associates
Reported: 06/08/2018 15:52

Group Number: 1945487

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/l	LCS Conc mg/l	LCSD Spike Added mg/l	LCSD Conc mg/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Chloride	3.00	3.00			100		90-110		
Nitrate Nitrogen	0.750	0.728			97		90-110		
Nitrite Nitrogen	0.750	0.744			99		90-110		
Sulfate	7.50	7.72			103		90-110		
Batch number: 18143107101B	Sample number(s): 9618570-9618573								
Ammonia Nitrogen	1.50	1.47	1.50	1.50	98	100	90-110	2	15
	mg/l	mg/l	mg/l	mg/l					
Batch number: 18142022901A	Sample number(s): 9618570-9618573								
Sulfite	50	46			92		79-105		
Batch number: 18142385801A	Sample number(s): 9618570-9618573								
Total Suspended Solids	150	142.8			95		89-105		
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 18141005202A	Sample number(s): 9618570-9618573								
Total Alkalinity to pH 4.5	188	177.24			94		77-109		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 181401063501	Sample number(s): 9618570-9618573 UNSPK: P612461									
Aluminum	0.0894 U	2.00	1.86	2.00	1.87	93	93	75-125	0	20
Calcium	171.65	4.00	182.87	4.00	179.82	281 (2)	204 (2)	75-125	2	20
Iron	3.43	1.00	4.47	1.00	4.45	104	102	75-125	1	20
Magnesium	205.61	2.00	214.09	2.00	209.21	424 (2)	180 (2)	75-125	2	20
Manganese	1.51	0.500	2.04	0.500	2.03	106	103	75-125	1	20
Potassium	177.82	10	194.18	10	191.81	164 (2)	140 (2)	75-125	1	20
Sodium	574.53	10	604.24	10	582.77	297 (2)	82 (2)	75-125	4	20
Zinc	0.0065 U	0.500	0.502	0.500	0.510	100	102	75-125	2	20
Batch number: 181420571302	Sample number(s): 9618570-9618573 UNSPK: 9618570									
Mercury	0.000050 U	0.00100	0.000867	0.00100	0.000849	87	85	80-120	2	20
Batch number: 181421063901A	Sample number(s): 9618570-9618573 UNSPK: P617514									
Antimony	0.00045 U	0.00600	0.00670	0.00600	0.00703	112	117	75-125	5	20

*- Outside of specification

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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: Golder Associates
Reported: 06/08/2018 15:52

Group Number: 1945487

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Arsenic	0.110	0.0100	0.122	0.0100	0.120	121 (2)	100 (2)	75-125	2	20
Beryllium	0.000071 U	0.00400	0.00423	0.00400	0.00418	106	105	75-125	1	20
Cadmium	0.00015 U	0.00500	0.00552	0.00500	0.00496	110	99	75-125	11	20
Chromium	0.00087 U	0.0500	0.0517	0.0500	0.0530	103	106	75-125	2	20
Cobalt	0.00215	0.250	0.247	0.250	0.242	98	96	75-125	2	20
Copper	0.00054 U	0.0500	0.0519	0.0500	0.0505	104	101	75-125	3	20
Lead	0.000637	0.0150	0.0167	0.0150	0.0169	107	108	75-125	1	20
Nickel	0.00258	0.0500	0.0558	0.0500	0.0536	106	102	75-125	4	20
Silver	0.00015 U	0.0500	0.0505	0.0500	0.0479	101	96	75-125	5	20
Thallium	0.00012 U	0.00200	0.00217	0.00200	0.00211	108	105	75-125	3	20
Vanadium	0.000280	0.0500	0.0519	0.0500	0.0518	103	103	75-125	0	20
Batch number: 181421063901B	Sample number(s): 9618570-9618573 UNSPK: P617514									
Selenium	0.00050 U	0.0100	0.0107	0.0100	0.0106	107	106	75-125	1	20
Batch number: 181421063901D	Sample number(s): 9618570-9618573 UNSPK: P617514									
Barium	0.143	0.0500	0.195	0.0500	0.190	105	95	75-125	3	20
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 18139265112A	Sample number(s): 9618570-9618573 UNSPK: P618578									
Chloride	116.31	100	227.15			111*		90-110		
Nitrate Nitrogen	0.970	2.50	3.38			97		90-110		
Nitrite Nitrogen	0.25 U	2.50	2.31			92		90-110		
Sulfate	12.03	25	38.96			108		90-110		
Batch number: 18143107101B	Sample number(s): 9618570-9618573 UNSPK: P618578									
Ammonia Nitrogen	0.050 U	1.00	1.08			108		90-110		
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 18142022901A	Sample number(s): 9618570-9618573 UNSPK: 9618570									
Sulfite	1.5 U	50	47.5	50	48	95	96	79-105	1	5
	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3	mg/l as CaCO3					
Batch number: 18141005202A	Sample number(s): 9618570-9618573 UNSPK: P618662									
Total Alkalinity to pH 4.5	257.63	188	279.4			12*		77-109		

*- Outside of specification

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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: Golder Associates
Reported: 06/08/2018 15:52

Group Number: 1945487

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
Batch number: 181401063501	Sample number(s): 9618570-9618573 BKG: P612461			
Aluminum	0.0894 U	0.0894 U	0 (1)	20
Calcium	171.65	174.93	2	20
Iron	3.43	3.45	1	20
Magnesium	205.61	206.19	0	20
Manganese	1.51	1.54	2	20
Potassium	177.82	183.82	3	20
Sodium	574.53	606.05	5	20
Zinc	0.0065 U	0.0065 U	0 (1)	20
Batch number: 181420571302	Sample number(s): 9618570-9618573 BKG: 9618570			
Mercury	0.000050 U	0.000050 U	0 (1)	20
Batch number: 181421063901A	Sample number(s): 9618570-9618573 BKG: P617514			
Antimony	0.00045 U	0.00045 U	0 (1)	20
Arsenic	0.110	0.107	3	20
Beryllium	0.000071 U	0.000071 U	0 (1)	20
Cadmium	0.00015 U	0.00015 U	0 (1)	20
Chromium	0.00087 U	0.00087 U	0 (1)	20
Cobalt	0.00215	0.00228	6 (1)	20
Copper	0.00054 U	0.00054 U	0 (1)	20
Lead	0.000637	0.000764	18 (1)	20
Nickel	0.00258	0.00242	6 (1)	20
Silver	0.00015 U	0.00015 U	0 (1)	20
Thallium	0.00012 U	0.00012 U	0 (1)	20
Vanadium	0.000280	0.000240	15 (1)	20
Batch number: 181421063901B	Sample number(s): 9618570-9618573 BKG: P617514			
Selenium	0.00050 U	0.00050 U	0 (1)	20
Batch number: 181421063901D	Sample number(s): 9618570-9618573 BKG: P617514			
Barium	0.143	0.139	3	20
	mg/l	mg/l		
Batch number: 18139265112A	Sample number(s): 9618570-9618573 BKG: P618578			
Chloride	116.31	116.75	0	15
Nitrate Nitrogen	0.970	0.950	2 (1)	15
Nitrite Nitrogen	0.25 U	0.25 U	0 (1)	15
Sulfate	12.03	11.89	1 (1)	15
Batch number: 18143107101B	Sample number(s): 9618570-9618573 BKG: P618578			
Ammonia Nitrogen	0.050 U	0.050 U	0 (1)	20
	mg/l	mg/l		
Batch number: 18142022901A	Sample number(s): 9618570-9618573 BKG: 9618570			

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(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: Golder Associates
Reported: 06/08/2018 15:52

Group Number: 1945487

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
Sulfite	1.5 U	1.5 U	0 (1)	20
Batch number: 18142385801A	Sample number(s): 9618570-9618573 BKG: P618343			
Total Suspended Solids	71.33	70.67	1 (1)	5
	mg/l as CaCO ₃	mg/l as CaCO ₃		
Batch number: 18141005202A	Sample number(s): 9618570-9618573 BKG: P618662			
Total Alkalinity to pH 4.5	257.63	254.46	1	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 16 PFAS Compounds

Batch number: 18144009

	13C4-PFBA	13C5-PFPeA	13C3-PFBS	13C5-PFHxA	13C3-PFHxS	13C4-PFHpA
9618570	94	96	93	91	90	91
9618571	94	102	97	94	94	100
9618572	90	96	94	94	91	97
9618573	90	90	89	86	78	86
9618574	90	90	91	95	93	88
9618575	96	96	93	100	94	95
Blank	83	84	80	89	82	86
LCS	90	90	91	85	86	87
Limits:	33-123	39-135	26-148	31-128	34-126	35-126
	13C8-PFOA	13C8-PFOS	13C9-PFNA	13C6-PFDA	d3-NMeFOSAA	13C7-PFUnDA
9618570	93	87	94	88	105	108
9618571	97	96	111	89	107	106
9618572	92	94	103	88	108	100
9618573	83	84	101	85	105	109
9618574	92	96	108	88	112	107
9618575	90	99	113	85	106	97
Blank	83	86	93	82	93	97
LCS	88	96	93	84	107	99
Limits:	43-112	43-115	32-134	40-115	17-120	30-128
	d5-NEtFOSAA	13C2-PFDODA	13C2-PFTeDA			
9618570	103	101	101			

*- Outside of specification

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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: Golder Associates
Reported: 06/08/2018 15:52

Group Number: 1945487

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 16 PFAS Compounds

Batch number: 18144009

	d5-NEtFOSAA	13C2-PFD _o DA	13C2-PFTeDA
9618571	103	109	107
9618572	89	99	95
9618573	102	98	96
9618574	105	104	92
9618575	95	99	93
Blank	92	88	85
LCS	93	91	91
Limits:	21-135	28-127	26-119

*- Outside of specification

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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.

Environmental Analysis Request/Chain of Custody



Lancaster Laboratories
Environmental

Acct. # 10253

For Eurofins Lancaster Laboratories Environmental use only

Group # 1945487

Sample # 9618570-75

COC # 549882

Client Information				Matrix				Analysis Requested												For Lab Use Only	
Client: <u>Gold Associates</u>		Acct. #:		☐ Tissue ☐ Ground ☒ Surface ☐ Potable ☐ NPDES ☐ Other:	Total # of Containers	Preservation Codes												FSC: _____	SCR#: _____		
Project Name/ID: <u>SLPP 1166-8623</u>		PWSID #:				<u>PFAS (Perfluorinated)</u> <u>Cr, Co, Cu, Fe, Pb, Hg, Mn, Ni, Se, Ag, Ti, V, Zn</u> <u>17 metals</u> <u>chloride, nitrate, nitrite, sulfate</u> <u>Bicarbonate alkalinity</u> <u>sulfate</u> <u>Ammonia Nitrogen</u> <u>ISS</u> Preservation Codes H=HCl T=Thiosulfate N=HNO₃ B=NaOH S=H₂SO₄ O=Other												Remarks * site specific list * al, sh, ds, Ba, Be, Cd, Cr, Co, Cu, Pb, Hg, Ni, Se, Ag, Ti, V, Zn			
Project Manager: <u>Jim Pease</u>		P.O. #:																			
Sampler: <u>Scott Drew</u>		Quote #:																			
State where samples were collected: <u>MA</u>		For Compliance: Yes ☐ No ☐		Soil ☐ Sediment ☐	Water	Other:															
Sample Identification		Collected																Grab	Composite		
Date	Time																				
SW-VBA-101	5/18/16	1015	X			X		8	X	X	X	X	X	X	X	X					
SW-VBA-102		935	X			X		8	X	X	X	X	X	X	X	X					
DUP-1		1015	X			X		8	X	X	X	X	X	X	X	X					
EB-1		1110	X			X		8	X	X	X	X	X	X	X	X					
FB-1		1055	X			X		2	X												
TB-1	✓	1155	X			X		2	X												

Turnaround Time (TAT) Requested (please circle) Standard <u>Standard</u> Rush (Rush TAT is subject to laboratory approval and surcharge.)				Relinquished by: <u>[Signature]</u> Date: <u>5/18/16</u> Time: <u>1330</u>		Received by: _____ Date: _____ Time: _____	
Date results are needed: <u>ASAP</u> E-mail address: <u>jpease@gold.com</u> <u>scott.drew@gold.com</u>				Relinquished by: _____ Date: _____ Time: _____		Received by: _____ Date: _____ Time: _____	
Data Package Options (circle if required) Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only) Type III (Reduced non-CLP) NJ DKQP TX TRRP-13 NYSDEC Category A or B MA MCP CT RCP				Relinquished by: _____ Date: _____ Time: _____		Received by: <u>[Signature]</u> Date: <u>5/18/16</u> Time: <u>1000</u>	
EDD Required? Yes ☒ No ☐ If yes, format: _____ Site-Specific QC (MS/MSD/Dup)? Yes ☒ No ☐ (If yes, indicate QC sample and submit triplicate sample volume.)				Relinquished by Commercial Carrier: UPS _____ FedEx <u>X</u> Other _____ Temperature upon receipt <u>0.4</u> °C			

Sample Administration
Receipt Documentation Log

Doc Log ID: 216913



Group Number(s): 1945487

Client: Golder Associates**Delivery and Receipt Information**

Delivery Method:	<u>Fed Ex</u>	Arrival Timestamp:	<u>05/19/2018 10:00</u>
Number of Packages:	<u>3</u>	Number of Projects:	<u>1</u>
State/Province of Origin:	<u>NH</u>		

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:	2
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): Unpreserved

*Unpacked by Raysa Perez (14020) at 11:35 on 05/19/2018***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	0.5	DT	Wet	Y	Bagged	N
2	DT146	0.4	DT	Wet	Y	Bagged	N
3	DT146	0.9	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	mg	milligram(s)
C	degrees Celsius	mL	milliliter(s)
cfu	colony forming units	MPN	Most Probable Number
CP Units	cobalt-chloroplatinate units	N.D.	non-detect
F	degrees Fahrenheit	ng	nanogram(s)
g	gram(s)	NTU	nephelometric turbidity units
IU	International Units	pg/L	picogram/liter
kg	kilogram(s)	RL	Reporting Limit
L	liter(s)	TNTC	Too Numerous To Count
lb.	pound(s)	µg	microgram(s)
m3	cubic meter(s)	µL	microliter(s)
meq	milliequivalents	umhos/cm	micromhos/cm
<	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.
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.

ATTACHMENT B



ATTACHMENT B: FIELD INFORMATION FORM

Site:	Saint-Gobain Performance Plastics	Meter/Type/Serial #:	YSI 556 MPS/14A100115; 2100Q Portable Turbidimeter/ 17060C059035
Location:	Merrimack, NH	Sampling Device:	Dipper
Project Number:	166-8623	Analytical Parameters:	Flow, temperature, DO, conductivity, pH, turbidity, ORP
Sampler(s):	L. Ancuta, T. Brigham, S. Drew, L. Lampo		
Weather Conditions:	18/05/18 - Party Sunny 70°F; 18/05/24 - Sunny 60°F		

STATION / SAMPLE ID	DATE	TIME	TOTAL DEPTH	FLOW	TEMP	DO	COND	PH	TURBIDITY	ORP	COMMENTS
	mm/dd/yyyy	hr:min	feet	ft/s	Celsius	mg/L	µS/cm	su	NTU	mV	
SGPP-MH-23	5/24/2018	11:40		NM	NM	NM	NM	NM	NM	NM	Not measured due to low-flow
SGPP-MH-5	5/24/2018	11:35		NM	12.45	9.83	1181	6.48	1.97	237.1	
SGPP-Outfall 001	5/24/2018	10:15		NM	10.49	11.93	541	6.50	0.47	162.2	
SW-MERR-101W-NS	5/24/2018	8:55	5	0.033	17.51	7.97	124	6.87	2.43	75.0	
SW-MERR-201W-NS	5/24/2018	8:55		0.03	17.37	9.50	114	6.78	1.54	91.0	
SW-MERR-201W-IC	5/24/2018	9:45		0.78	17.27	9.61	113	6.84	1.64	90.8	
SW-MERR-202W-NS	5/24/2018	9:50	3	0.459	17.3	8.91	123	6.97	0.96	129.9	
SW-MERR-202W-IC	5/24/2018	10:00	6	0.82	17.32	9.06	123	6.98	2.08	136.4	
SW-MERR-301W-NS	5/24/2018	13:00		0.38	17.96	9.50	124	7.07	1.27	171.6	
SW-MERR-302W-NS	5/24/2018	13:43		-0.11	18.15	9.46	126	7.03	1.94	98.0	
SW-MERR-302W-IC	5/24/2018	14:00		-0.20	18.15	9.43	127	7.03	1.20	104.2	
SW-MERR-303W-NS	5/24/2018	14:40	3	-0.459	18.19	10.11	116	6.97	1.89	101.2	
SW-MERR-401W-NS	5/24/2018	13:00	3	0.197	18.18	9.74	113	6.97	3.53	166.9	
SW-MERR-402W-NS	5/17/2018	13:15		0.131	16.60	8.85	117	6.76	2.33	119.0	
SW-MERR-402W-IC	5/17/2018	13:25		0.032	16.59	8.07	116	6.73	2.13	102.1	
SW-MERR-403W-NS	5/17/2018	13:00		0.262	16.36	9.11	115	6.74	1.97	153.1	
SW-DB-101	5/24/2018	13:25		0.00	16.43	8.07	453	6.73	5.89	-122.9	
SW-DB-102	5/24/2018	13:25	2	0.00	18.96	9.72	203	6.32	16.2	119.6	Shallow, stagnant
SW-DB-103	5/17/2018	14:25		1.60	14.25	10.48	476	6.98	1.78	181.5	
SW-DB-104	5/17/2018	16:00		0.78	14.52	10.17	476	6.81	2.94	232.6	
SW-DB-105	5/17/2018	14:50		1.06	14.88	9.72	488	6.58	2.12	189.9	
SW-DB-106	5/17/2018	15:15		0.97	14.55	9.47	491	6.44	1.32	176.7	
SW-DB-107	5/18/2018	8:30		1.03	12.79	8.77	459	6.23	0.94	108.7	
SW-DB-108	5/18/2018	8:55		0.00	12.84	6.43	436	6.08	1.78	86.4	
SW-DB-109	5/18/2018	9:10		0.00	11.11	4.16	498	6.46	4.74	-20.0	
SW-UBA-101	5/18/2018	10:15		1.6	9.90	11.18	618	6.95	0.04	118.0	
SW-UBA-102	5/18/2018	9:35		0.02	13.25	6.48	588	6.44	3.01	114.2	

Notes:

Prepared By: LDA
 Checked By: LWL
 Reviewed By: RWB