NH Targeted Report # 3

Analyst Mark Strynar

New Hampshire DES Water Samples--Targeted Analysis

NHDES Report # 3

Data Table in Report NH-3

Samples Collected: 9/27/2017

Sample ID	GenX	PFBA	PFPeA	PFHxA	PFHpA
	ng/L	ng/L	ng/L	ng/L	ng/L
EPAORD 001	ND	11.1	31.7	ND	49.2
EPAORD 002	ND	ND	1.06	ND	3.32
EPAORD 003	ND	ND	0.757	ND	2.88
EPAORD 004	ND	153	168	ND	124
EPAORD 005	ND	143	155	ND	126
EPAORD 006	ND	577	713	ND	679
EPAORD 007	ND	9.82	18.5	ND	25.8
EPAORD 008	ND	6.36	8	ND	14.6
EPAORD 009	ND	74.8	95.3	ND	71
EPAORD 010	ND	73.9	109	ND	134
EPAORD 011	ND	286	381	ND	500
EPAORD 012	ND	30.4	50.1	ND	92.6
EPAORD 013	ND	31.9	49.8	ND	116
EPAORD 014	ND	9.47	15.3	ND	25.6
EPAORD 015	ND	23	17.4	ND	18.8
EPAORD 016	ND	18.7	26.6	ND	35.5
EPAORD 017	ND	5.87	15.6	ND	28.5
EPAORD 018	ND	ND	1.87	ND	8.09
EPAORD 019	ND	11.8	15.5	ND	19.8
EPAORD 020	ND	2.96	5.34	ND	10.6
EPAORD 021	ND	1.79	4.65	ND	10.7
EPAORD 022	ND	9.47	15.3	ND	25.6
EPAORD 023	ND	28.2	34.9	ND	50.2
EPAORD 024	ND	0.822	2.26	ND	6.77
EPAORD 901	ND	ND	9.04	ND	26.8

ND: Sample result is less than the limit of deterction (<LOD), no peak observed.

< LOQ: Peak observed but less than the limit of quantitation (<LOQ).

LOQ = 10 ng/L

PFOA	PFNA	PFDA	PFBS	PFHxS	PFOS	SUM
ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L
227	30.1	48.2	9.92	23.9	36.4	487
6.16	1.54	10.8	2.71	ND	8.18	10.8
1.99	ND	45	2.83	ND	19.6	64.6
580	4.44	39.7	12.5	21.1	37.9	1170
578	2.73	11.3	18.5	15	37.6	1120
2270	23.3	12.6	9.79	38.2	278	4760
101	ND	ND	5.57	ND	ND	155
70.3	ND	ND	4.89	ND	5.65	84.9
397	ND	ND	9.17	ND	ND	673
497	ND	0.875	13.6	12.3	ND	861
1460	ND	ND	21.7	21.7	ND	2750
452	ND	ND	9.55	86.4	7.29	732
448	ND	ND	6.48	88.7	6.88	744
82.8	ND	ND	7.64	8.69	ND	ND
100	ND	ND	11.5	ND	ND	171
117	ND	ND	14.2	ND	ND	212
180	ND	ND	34.8	9.93	ND	269
61.7	ND	ND	5.52	ND	ND	61.7
96.1	ND	ND	57.5	ND	ND	201
61.2	ND	ND	2.28	9.64	ND	81.5
61.7	ND	ND	2.95	ND	ND	72.4
82.8	ND	ND	7.64	8.69	ND	299
260	ND	ND	1.24	9.54	ND	776
17.4	ND	ND	1.17	ND	ND	48.3
209	ND	ND	1.57	8.74	ND	508

JC1: Sample result exceeds the upper calibration range.

JP: Sample does not meet acceptance criteria for precision.

NH NTA Report # 7

Analyst Mark Strynar

New Hampshire DES Water Samples--NTA Analysis

NHDES Report # 7 Table 3

Compound	Monoisotopic Mass	Formula
Perfluorobutanoic acid (PFBA)	213.9866	C4 H F7 O2
Perfluoropentanoic acid (PFPeA)	263.983	C5 H F9 O2
Perfluorohexanoate (PFHxA)	313.9798	C6 H F11 O2
Perfluoroheptanoic acid (PFHpA)	363.9765	C7 H F13 O2
(PFHpA-CO2 fragment)	319.9867	C6 H F13
Perfluorooctanoic acid (PFOA)	413.9733	C8 H F15 O2
(PFOA-CO2 fragment)	369.9834	C7 H F15
Perfluorononanoic acid (PFNA)	463.9697	C9 H F17 O2
(PFNA-CO2 fragment)	419.9799	C8 H F17
Perfluorodecanoic acid (PFDA)	513.9658	C10 H F19 O2
Perfluorobutanesulfonate (PFBS)	299.9497	C4 H F9 O3 S
Perfluoropentanesulfonate (PFPeS)	349.947	C5 H F11 O3 S
Perfluorohexane Sulfonate (PFHxS)	399.9434	C6 H F13 O3 S
Perfluorooctanesulfonate (PFOS)	499.9362	C8 H F17 O3 S
3:2 Fluorotelomer alcohol	214.0224	C5 H5 F7 O
Perfluoro-3-(1H-perfluoroethoxy)propane	285.9851	C5 H F11 O
Tridecafluoroheptaneperoxoic acid	379.9712	C7 H F13 O3
Undecafluorocyclohexanemethanol dihydrogen phosphate	391.9713	C7 H4 F11 O4 P
Perfluorohexanesulfonamide	398.9571	C6 H2 F13 N O2 S
6:2 Fluorotelomer sulfonic acid (6:2FtS)	427.9745	C8 H5 F13 O3 S
Perfluoropentane sulfonamido amine	434.0563	C10 H13 F11 N2 O2 S
Perfluorooctanesulfonamide (PFOSA)	498.9501	C8 H2 F17 N O2 S
2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9-Hexadecafluorononyl methacrylate	500.0217	C13 H8 F16 O2
POLYFLGSID_880958	682.3026	C33 H42 F8 N2 O4

Tentatively Identified Compound Name	CAS Number	Formula
Perfluorobutanoic acid (PFBA)	375-22-4	C4 H F7 O2
Perfluoropentanoic acid (PFPeA)	2706-90-3	C5 H F9 O2
Perfluorohexanoate (PFHxA)	92612-52-7	C6 H F11 O2
Perfluoroheptanoic acid (PFHpA)	375-85-9	C7 H F13 O2
(PFHpA-CO2 fragment)		C6 H F13
Perfluorooctanoic acid (PFOA)	335-67-1	C8 H F15 O2
(PFOA-CO2 fragment)		C7 H F15
Perfluorononanoic acid (PFNA)	375-95-1	C9 H F17 O2
(PFNA-CO2 fragment)		C8 H F17
Perfluorodecanoic acid (PFDA)	335-76-2	C10 H F19 O2
Perfluorobutanesulfonate (PFBS)	375-73-5	C4 H F9 O3 S
Perfluoropentanesulfonate (PFPeS)	2706-91-4	C5 H F11 O3 S
Perfluorohexane Sulfonate (PFHxS)	355-46-4	C6 H F13 O3 S
Perfluorooctanesulfonate (PFOS)	1763-23-1	C8 H F17 O3 S
3:2 Fluorotelomer alcohol	755-40-8	C5 H5 F7 O

Surface Water and Wells

Units of Peak Area Counts

duplicate pair

Chem Ref. #	EPAORD 001	EPAORD 002	EPAORD 003	EPAORD 004
1	40,400	13,900	12,900	149,000
2	102,000	15,700	16,600	670,000
3	173,000	19,500	15,000	826,000
4	229,000	<RL	<RL	616,000
5	103,000	8,710	6,030	258,000
6	1,010,000	38,200	19,700	2,610,000
7	504,000	20,600	10,300	1,210,000
8	182,000	40,500	16,200	43,800
9	85,700	19,500	7,740	23,600
10	183,000	41,800	152,000	149,000
11	42,500	10,400	10,600	61,200
12	21,700	ND	ND	33,300
13	120,000	12,000	8,650	101,000
14	327,000	62,500	147,000	444,000
15	135,000	199,000	180,000	108,000
16	8,260	6,920	ND	5,610
17	35,200	12,100	ND	ND
18	9,270	ND	ND	18,100
19	5,650	ND	ND	21,900
20	ND	ND	ND	26,100
21	16,600	ND	ND	20,200
22	53,700	ND	ND	117,000
23	15,900	4,380	1,780	8,910
24	172,000	154,000	153,000	556,000

Monoisotopic Mass (Daltons)	Retention Time	Chem Ref. #
213.9866	1.52	1
263.9830	3.68	2
313.9798	5.07	3
363.9765	5.82	4
319.9867	5.81	5
413.9733	6.33	6
369.9834	6.33	7
463.9697	6.76	8
419.9799	6.76	9
513.9658	7.17	10
299.9497	4.22	11
349.9470	5.25	12
399.9434	5.88	13
499.9362	6.75	14
214.0224	1.24	15

This group contains surface water and private groundwater wells in the vicinity of St. Gobain's

EPAORD 005
183,000
838,000
1,010,000
765,000
312,000
3,250,000
1,470,000
45,300
26,600
53,700
112,000
38,900
128,000
451,000
146,000
ND
ND
22,000
22,200
33,400
29,100
118,000
14,300
649,000

Minimum Detection Level is set at 3

duplicate pair

EPAORD 006	EPAORD 007	EPAORD 008	EPAORD 009	EPAORD 010	EPAORD 011	EPAORD 012	EPAORD 013	EPAORD 014
686,000	21,200	20,300	154,000	104,000	248,000	45,600	53,200	8,710
2,970,000	62,100	38,000	371,000	356,000	997,000	126,000	153,000	6,270
4,260,000	103,000	57,600	562,000	632,000	1,870,000	218,000	266,000	5,610
2,760,000	155,000	81,600	464,000	689,000	1,800,000	421,000	490,000	<RL
984,000	70,900	41,200	162,000	284,000	624,000	211,000	178,000	4,120
11,800,000	495,000	266,000	2,290,000	2,440,000	6,600,000	1,580,000	2,260,000	41,600
4,810,000	272,000	172,000	1,060,000	1,210,000	3,040,000	1,010,000	1,160,000	23,200
95,700	5,700	ND	15,500	11,000	6,300	ND	ND	ND
55,600	ND	ND	13,000	6,030	ND	ND	ND	ND
41,100	ND	ND	ND	6,380	ND	ND	ND	ND
64,000	36,500	22,300	70,800	79,100	152,000	43,900	53,600	8,770
62,000	10,500	6,860	5,850	20,000	76,000	52,700	67,100	ND
184,000	38,600	19,500	36,200	51,000	118,000	649,000	870,000	5,610
2,530,000	19,300	61,200	21,100	11,600	25,000	74,100	95,300	ND
16,800	ND	ND	4,140	8,900	5,850	2,050	ND	ND
8,000	5,750	ND	ND	5,600	7,030	4,130	6,680	6,600
ND	ND	ND	ND	ND	ND	ND	ND	ND
64,800	8,110	ND	9,060	25,900	78,300	ND	ND	ND
81,100	ND	ND	13,100	22,000	67,800	8,170	9,020	ND
646,000	ND	ND	ND	ND	ND	ND	ND	ND
15,100	41,100	16,000	19,900	ND	ND	3,330	ND	ND
233,000	33,200	21,300	89,600	128,000	306,000	113,000	121,000	ND
156,000	ND	1,150	ND	ND	ND	3,150	8,740	ND
622,000	584,000	538,000	626,000	528,000	303,000	258,000	454,000	410,000

x SD DEV All Blanks and 3 x AVE All Blanks

EPAORD 015	EPAORD 016	EPAORD 017	EPAORD 018	EPAORD 019	EPAORD 020	EPAORD 021	EPAORD 022	EPAORD 023	EPAORD 024	EPAORD 901	TB
29,700	29,500	35,500	15,000	37,100	23,000	23,400	60,400	89,400	30,900	21,100	ND
88,200	81,300	59,000	18,000	84,800	38,600	38,000	179,000	357,000	66,800	55,600	ND
96,200	151,000	110,000	26,900	108,000	48,400	51,900	219,000	481,000	76,700	155,000	ND
101,000	175,000	197,000	57,500	136,000	71,600	78,200	281,000	669,000	91,300	345,000	ND
44,400	81,000	67,300	24,400	55,300	33,600	30,200	125,000	248,000	45,700	141,000	ND
445,000	542,000	1,090,000	378,000	528,000	356,000	351,000	842,000	3,120,000	211,000	2,370,000	ND
237,000	300,000	525,000	206,000	265,000	185,000	186,000	439,000	1,450,000	126,000	1,060,000	ND
ND	3,500	5,140	ND	6,540	6,240	5,850	7,310	8,530	ND	6,680	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
65,200	82,800	258,000	38,700	428,000	24,900	11,500	118,000	14,100	14,500	13,400	ND
ND	9,260	9,340	7,810	7,570	7,430	ND	11,900	6,900	7,030	ND	ND
22,100	19,500	38,700	30,100	27,900	29,600	24,000	42,800	42,100	30,400	29,200	ND
17,800	ND	34,300	14,900	11,700	17,300	13,800	5,670	25,600	7,890	44,700	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	1,850	ND	ND
6,430	48,500	7,080	7,250	7,020	9,480	6,950	10,300	11,000	7,520	8,140	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	17,900	ND	9,230	ND
ND	6,700	ND	ND	ND	ND	ND	6,130	10,800	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7,580	6,840	36,400	155,000	9,610	11,400	15,500	11,700	ND	17,000	25,800	ND
30,700	30,200	58,100	23,000	31,500	21,800	21,200	39,900	116,000	13,900	99,400	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4,310	ND
332,000	360,000	306,000	525,000	224,000	318,000	283,000	331,000	257,000	219,000	225,000	<RL

LEGEND

Color	Peak Area Category
ND	No peak area detected
<RL	Less than the Reporting Limit
	>RL - 50,000
	50,000 - 100,000
	100,000 - 200,000
	200,000 - 500,000
	500,000 - 1,000,000
	>1,000,000

Perfluoro-3-(1H-perfluoroethoxy)propane	3330-15-2	C5 H F11 O
Tridecafluoroheptaneperoxoic acid	139702-34-4	C7 H F13 O3
Undecafluorocyclohexanemethanol dihydrogen phosphate	32582-74-4	C7 H4 F11 O4 P
Perfluorohexanesulfonamide	41997-13-1	C6 H2 F13 N O2 S
6:2 Fluorotelomer sulfonic acid (6:2FtS)	27619-97-2	C8 H5 F13 O3 S
Perfluoropentane sulfonamido amine	68555-78-2	C10 H13 F11 N2 O2 S
Perfluorooctanesulfonamide (PFOSA)	754-91-6	C8 H2 F17 N O2 S
2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9-Hexadecafluorononyl methacrylate	1841-46-9	C13 H8 F16 O2
POLYFLGSID_880958	72494-14-5	C33 H42 F8 N2 O4

285.9851	5.33	16
379.9712	5.98	17
391.9713	6.04	18
398.9571	5.07	19
427.9745	6.30	20
434.0563	4.12	21
498.9501	6.33	22
500.0217	6.75	23
682.3026	12.88	24

NH NTA Report # 8

Analyst Mark Strynar

New Hampshire DES Water Samples--NTA Analysis Matched PFAS

NHDES Report # 8 Table 3

Compound Name	Short Name	Monoisotopic Mass (Daltons)
Perfluoropropanoic acid	PFPA	163.99
Perfluorobutanoic acid	PFBA	213.9868
Perfluorobutanesulfonic acid	PFBS	299.9504
Perfluoropentanoic acid	PFPeA	263.9846
Perfluoropentanesulfonic acid	PFPeS	349.9477
Perfluorohexanoic acid	PFHxA	313.9797
Perfluorohexanesulfonic acid	PFHxS	399.9433
Perfluoroheptanoic acid	PFHpA	363.9781
Perfluorooctanoic acid	PFOA	413.9741
Perfluorooctanesulfonamide	PFOSA	498.9507
C8H F13 O3		391.9721
C7 H F13 O (decarboxylated C8 H F13 O3)		347.9825

Tentatively Identified Compound Name	**Short Name**	**CAS Number**
Perfluoropropanoic acid	PFPA	422-64-0
Perfluorobutanoic acid	PFBA	375-22-4
Perfluorobutanesulfonic acid	PFBS	375-73-5
Perfluoropentanoic acid	PFPeA	2706-90-3
Perfluoropentanesulfonic acid	PFPeS	2706-91-4
Perfluorohexanoic acid	PFHxA	92612-52-7
Perfluorohexanesulfonic acid	PFHxS	355-46-4
Perfluoroheptanoic acid	PFHpA	375-85-9
Perfluorooctanoic acid	PFOA	335-67-1
Perfluorooctanesulfonamide	PFOSA	754-91-6
C8H F13 O3		
C7 H F13 O (decarboxylated C8 H F13 O3)		

Monitoring Wells

Units of Peak Area Counts

			duplicate pair
Formula	CAS Number	Retention Time	MWGZ1A
C3 H F5 O2	422-64-0	1.78	193,000
C4 H F7 O2	375-22-4	3.91	879,000
C4 H F9 O3 S	375-73-5	6.06	148,000
C5 H F9 O2	2706-90-3	5.82	3,090,000
C5 H F11 O3 S	2706-91-4	6.82	178,000
C6 H F11 O2	92612-52-7	6.74	2,540,000
C6 F13 H O3 S	355-46-4	7.35	330,000
C7 H F13 O2	375-85-9	7.31	8,390,000
C8 H F15 O2	335-67-1	7.76	21,200,000
C8 H2 F17 N O2 S	754-91-6	7.83	419,000
C8H F13 O3		7.53	197,000
C7 H F13 O		7.52	139,000

Formula	Monoisotopic Mass (Daltons)	Retention Time	Chem Ref. #
C3 H F5 O2	163.9900	1.78	1
C4 H F7 O2	213.9868	3.91	2
C4 H F9 O3 S	299.9504	6.06	3
C5 H F9 O2	263.9846	5.82	4
C5 H F11 O3 S	349.9477	6.82	5
C6 H F11 O2	313.9797	6.74	6
C6 F13 H O3 S	399.9433	7.35	7
C7 H F13 O2	363.9781	7.31	8
C8 H F15 O2	413.9741	7.76	9
C8 H2 F17 N O2 S	498.9507	7.83	10
C8H F13 O3	391.9721	7.53	11
C7 H F13 O	347.9825	7.52	12

These samples are described as coming from highly contaminated groundwater collected from a monitoring well immediately adjacent to and downgradient from the St. Gobain property

MWGZ1B	MWGZ2
189,000	281,000
1,050,000	1,680,000
175,000	120,000
3,540,000	3,590,000
206,000	305,000
2,970,000	2,480,000
359,000	775,000
9,020,000	17,500,000
23,700,000	38,300,000
449,000	542,000
227,000	362,000
157,000	248,000

MWGZ3	TB
413,000	ND
1,940,000	ND
79,800	ND
4,170,000	ND
63,400	ND
<RL	<RL
658,000	<RL
8,130,000	ND
55,600,000	<RL
577,000	ND
154,000	ND
85,000	ND

LEGEND

Color	Peak Area Category	
ND	No peak area detected	233/243/231
<RL	Less than the Reporting Limit	225/239/217
	>RL - 50,000	169/208/142
	50,000 - 100,000	229/237/119
	100,000 - 200,000	255/255/100
	200,000 - 500,000	255/217/102
	500,000 - 1,000,000	255/167/59
	>1,000,000	255/125/125

New Hampshire DES MM5 Train Samples--NTA Analysis Matched PFAS

Analyst: James McCord

NHDEP Report # 6

Compound Name	Monoisotopic Mass (g/mol)
6:1 Fluorotelomer ether alcohol (formate adduct); CAS 376-93-2	411.998
6:2 Fluorotelomer Unsaturated Carboxylic Acid (6:2 FTUCA)	357.98617
In-Source fragment, from 6:2 FTUCA	293.9901
Perfluorohexanoic acid (PFHxA); CAS 307-24-4	313.97989
In-Source fragment, from Perfluorohexanoic acid	269.99025
636.00203@6.056	636.00203
6:2 Fluorotelomer ethoxycarboxylate (6:2 FTEOC); CAS 147011-35-6	422.01885
Perfluoroheptanoic acid (PFHpA); CAS 375-85-9	363.97711
6:1 Fluorotelomer ether alcohol (formate adduct); CAS 1452584-51-8	410.0189
6:1 Fluorotelomer alcohol	349.99745
466.04541@3.89	466.04541
580.1864@7.154	580.1864
Perfluoropentanoic acid (PFPeA); CAS 2706-90-3	263.98354
6:1 Fluorotelomer Alcohol (formate adduct)	396.0036
2-Perfluorohexyl ethanoic acid; 6:2 FTA	377.99276
339.01195@4.773	339.01195
Perfluoropropanoic acid (PFPA); CAS 422-64-0	163.98985
627.96101@2.826	627.96101
514.06758@4.6	514.06758
Perfluorobutanoic acid (PFBA); CAS 375-22-4	213.98672
Fluorotelomer ethoxycarboxylate	510.07217
513.06471@4.533	513.06471
661.98197@5.314	661.98197
402.01273@3.68	402.01273
6:2 FETOC (formate adduct), 421.01154 + 46	468.02478
Fluorinated ethoxycarboxylate	586.12465
1-H Perfluoroheptanoic Acid	345.98662
554.09883@4.063	554.09883
PFECA; CAS 919005-00-8	261.98813
398.03819@4.766	398.03819
345.96275@4.474	345.96275
Fluoroether Carboxylic Acid, 1-H Substituted; CAS 919005-00-8	261.98771
723.97975@4.405	723.97975
400.05452@5.027	400.05452
588.11923@3.614	588.11923
438.03308@4.774	438.03308
468.08035@5.177	468.08035
C5 Fluorotelomer Methacrylate	398.03819
611.19204@7.365	611.19204
374.02188@4.026	374.02188
444.08012@4.932	444.08012
438.06938@5.334	438.06938
424.054@5.46	424.054
Trifluoroacetic acid	113.9933
466.35084@6.04	466.35084
566.17085@7.015	566.17085

		QX Tower					MA Tower		
Formula	Compound #	QX Tower Inlet FH Filter (700)	QX Tower Inlet XAD (702)	QX Tower Inlet BH Filter (706)	QX Tower Outlet FH Filter (800)	QX Tower Outlet XAD (802)	QX Tower Outlet BH Filter (806)	MA Tower FH Filter (500)	MA Tower XAD (502)
C8 H5 F13 O4	1	70,500	66,400,000	88,100	ND	18,500,000	13,700	ND	ND
C8 H2 F12 O2	2	399,000	51,800,000	110,000	354,000	9,270,000	ND	ND	ND
C7 H F11	3	210,000	26,000,000	54,000	173,000	4,000,000	ND	ND	ND
C6 H F11 O2	4	469,000	23,400,000	246,000	713,000	34,000,000	71,100	ND	ND
C5 H F11	5	282,000	17,700,000	140,000	388,000	20,100,000	29,700	ND	ND
C15 H6 F22 O2	6	ND	13,500,000	26,300	ND	5,840,000	6,030	ND	ND
C10 H7 F13 O3	7	104,000	9,840,000	81,700	116,000	1,050,000	ND	ND	ND
C7 H F13 O2	8	47,800	7,080,000	63,000	121,000	656,000	3,370	3,540	ND
C9 H7 F13 O3	9	20,500	5,180,000	196	1,500	6,750,000	ND	ND	1,080
C7 H3 F13 O	10	6,620	4,430,000	11,100	ND	1,260,000	1,210	ND	814
C12 H11 F13 O4	11	95,400	3,800,000	154,000	59,600	11,500	ND	ND	ND
C20 H29 F13 O4	12	ND	3,330,000	223	ND	1,320,000	ND	ND	ND
C5 H F9 O2	13	231,000	3,040,000	104,000	518,000	ND	ND	ND	ND
C8 H5 F13 O3	14	1,020	2,480,000	ND	ND	443,000	ND	ND	2,350
C8 H3 F13 O2	15	21,100	2,370,000	5,060	3,090	213,000	ND	ND	ND
C8 H4 F11 N O	16	9,300	2,140,000	1,630	ND	116,000	713	ND	1,230
C3 H F5 O2	17	58,600	2,070,000	6,970	134,000	120,000	ND	ND	333,000
C12 H2 F22 O4	18	14,800	2,030,000	4,510	43,900	1,960,000	231	ND	ND
C11 H12 F14 N4 O3	19	28,900	1,770,000	8,390	1,890	73,600	ND	ND	ND
C4 H F7 O2	20	92,400	1,580,000	34,400	285,000	289,000	1,450	ND	2,850
C14 H15 F13 O5	21	81,900	1,470,000	76,300	12,600	ND	ND	ND	ND
C15 H14 F11 N O6	22	28,700	1,440,000	1,560	ND	376,000	ND	ND	ND
C16 H4 F22 O3	23	ND	1,200,000	126	ND	1,890,000	211	ND	134
C10 H6 F12 O3	24	14,100	1,060,000	15,100	33,300	133,000	ND	ND	ND
C11 H9 F13 O5	25	9,130	915,000	19,800	41,100	116,000	ND	ND	ND
C17 H23 F13 O7	26	60,100	896,000	48,100	18,200	ND	ND	ND	ND
C7 H2 F12 O2	27	5,030	820,000	2,080	72,400	32,100	ND	1,210	1,990
C16 H19 F13 O6	28	72,800	619,000	39,000	5,420	ND	ND	ND	ND
C5 H2 F8 O3	29	127,000	585,000	8,650	26,400	340,000	ND	ND	ND
C11 H9 F11 O3	30	ND	439,000	ND	ND	50,200	ND	ND	1,370
C7 H2 Cl F11 O	31	124	428,000	ND	ND	194,000	ND	ND	267
C5 H2 F8 O3	32	127,000	413,000	244,000	916,000	ND	ND	ND	ND
C18 H4 F24 O3	33	390	381,000	2,620	ND	9,230	ND	ND	ND
C11 H11 F11 O3	34	ND	367,000	172	ND	143,000	ND	ND	ND
C18 H18 F14 N4 O2	35	ND	367,000	ND	ND	133,000	ND	ND	ND
C10 H10 F12 O5	36	ND	362,000	ND	ND	47,100	ND	ND	524
C12 H16 F12 O5	37	ND	351,000	ND	ND	467,000	ND	ND	145
C11 H9 F11 O3	38	ND	300,000	ND	ND	142,000	ND	ND	ND
C18 H27 F14 N5 O2	39	ND	294,000	ND	ND	195,000	ND	ND	ND
C8 H8 F10 O5	40	4,310	291,000	755	66	60,600	ND	ND	85
C13 H15 F11 O4	41	ND	284,000	ND	ND	233,000	55	ND	168
C14 H13 F11 O3	42	ND	281,000	ND	ND	216,000	ND	ND	ND
C13 H11 F11 O3	43	ND	254,000	146	ND	16,900	ND	ND	924
C2 H F3 O2	44	ND	ND	ND	ND	ND	ND	ND	ND
C22 H47 F N4 O5	45	127,000	229,000	2,170	1,360	ND	ND	ND	ND
C19 H27 F13 O4	46	ND	225,000	ND	ND	62,600	ND	ND	ND

	MS Tower			Blanks			
MA Tower BH Filter (506)	MS Tower FH Filter (600)	MS Tower XAD (602)	MS Tower BH Filter (606)	Trip Blank FH Filter (200)	Trip Blank XAD (202)	Trip Blank BH Filter (205)	Laboratory (206)
ND	ND	10,000	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	192	ND	ND	ND	ND	ND
ND	ND	477	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	39,400	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	731	ND	ND	ND	ND	ND
ND	ND	130,000	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	894	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	18,600	ND	ND	ND	ND	ND
ND	ND	819	ND	ND	ND	ND	ND
ND	ND	211	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	1,230	ND	ND	231	ND	ND
ND	ND	256	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	523	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	198,000	ND	ND
ND	ND	ND	ND	ND	529	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND

LEGEND
Color
ND

Peak Area Category
Non-detectable; peak area <5 times method or trip blank
>5x Blank - 30,000
30,000-50,000
50,000 - 100,000
100,000-400,000
400,000 -1,000,000
>1,000,000

648.00245@6.172	648.00245
512.05134@3.888	512.05134
452.08532@5.527	452.08532
2H,2H,3H,3H-Perfluorooctanoic acid	342.0117
Adduct or parent of 643.99542	707.00307
8:2 Fluorotelomer sulfonic acid; CAS 39108-34-4	527.96828
370.00654@3.274	370.00654
713.97542@7.369	713.97542
598.12532@4.117	598.12532
1-H Perfluorohexanoic acid	295.98954
694.0091@5.974	694.0091
438.01423@3.444	438.01423
312.00484@3.54	312.00484
438.06938@5.412	438.06938
932.09181@3.89	932.09181
846.32381@3.629	846.32381
524.05177@3.972	524.05177
574.15925@3.104	574.15925
344.0125@4.437	344.0125
341.99509@3.92	341.99509
424.054@4.908	424.054
PFECA; CAS 919005-00-8	261.98817
452.08532@5.625	452.08532
386.03801@4.955	386.03801
680.02858@6.153	680.02858
948.39131@3.927	948.39131
334.00642@4.689	334.00642
Perfluorononanoic acid (PFNA); CAS 375-91-1	463.97127
466.10121@5.926	466.10121
482.09598@5.382	482.09598
432.97899@4.201	432.97899
398.03819@4.669	398.03819
358.00624@4.226	358.00624
651.99867@5.772	651.99867
386.03801@5.337	386.03801
510.12834@5.989	510.12834
376.01695@4.222	376.01695
730.02943@6.067	730.02943
Perfluorooctanoic Acid (PFOA); CAS 335-67-1	413.97444
407.00215@3.99	407.00215
674.97761@5.542	674.97761

C13 H7 F23 O3	47	ND	209,000	177	ND	106,000	ND	ND	230
C11 H10 F14 N4 O3	48	800	206,000	12,000	4,750	ND	ND	ND	ND
C15 H15 F11 O3	49	ND	197,000	ND	ND	168,000	ND	ND	125
C8 H5 F11 O2	50	210	188,000	ND	ND	358,000	ND	ND	ND
C15 H4 F23 N5 O	51	ND	185,000	ND	ND	7,400	ND	ND	ND
C10 H5 F17 O3 S	52	6,440	176,000	1,110	39,200	573	ND	ND	88
C9 H5 F11 O3	53	6,630	170,000	7,550	14,600	406,000	ND	ND	ND
C10 H7 F17 N4 O13	54	ND	161,000	ND	ND	23,300	ND	ND	ND
C16 H20 F14 N4 O4	55	107,000	158,000	12,900	2,460	ND	ND	ND	1,100
C6 H2 F10 O2	56	196	157,000	425	ND	165,000	ND	ND	ND
C12 H6 F24 N4 O2	57	ND	155,000	171	ND	73,600	ND	ND	ND
C10 H7 F13 O4	58	2,590	155,000	1,420	498	4,320	ND	ND	134
C6 H5 F9 O4	59	ND	152,000	ND	ND	34,800	ND	ND	81
C11 H14 F12 O4	60	147	150,000	ND	ND	79,100	ND	ND	184
C22 H19 F27 N4 O5	61	ND	148,000	424	ND	ND	ND	ND	ND
C32 H47 F13 N4 O7	62	136	143,000	ND	ND	55,400	ND	ND	ND
C12 H10 F14 N4 O3	63	10,000	140,000	9,050	1,160	ND	ND	ND	ND
C20 H29 F7 N2 O7 S	64	523	139,000	ND	ND	4,770	ND	ND	ND
C5 H3 F11 N4 O	65	515	133,000	ND	ND	123,000	ND	ND	188
C7 H4 F10 O4	66	83	127,000	ND	ND	118,000	ND	ND	ND
C13 H11 F11 O3	67	ND	125,000	129	ND	73,700	ND	ND	587
C5 H2 F8 O3	68	ND	123,000	3,600	ND	340,000	ND	ND	ND
C15 H15 F11 O3	69	ND	122,000	ND	ND	97,500	ND	ND	ND
C10 H9 F11 O3	70	326	120,000	85	ND	204,000	330	ND	ND
C12 H8 F24 N4 O	71	ND	119,000	131	ND	8,210	ND	ND	532
C36 H61 F13 O13	72	ND	114,000	ND	ND	ND	ND	ND	ND
C6 H5 F11 O3	73	ND	113,000	ND	ND	14,900	ND	ND	492
C9 H F17 O2	74	721	109,000	8,050	ND	5,110	ND	ND	ND
C14 H14 F12 N4	75	ND	107,000	128	ND	397,000	ND	ND	ND
C13 H18 F12 O5	76	ND	105,000	ND	ND	96,300	ND	ND	76
C10 H F14 N O2	77	495	93,000	423	ND	158,000	1,030	ND	ND
C11 H9 F11 O3	78	ND	86,900	330	ND	194,000	ND	ND	184
C8 H5 F11 O3	79	1,420	86,500	ND	433	417,000	ND	ND	ND
C15 H6 F22 O3	80	ND	57,000	ND	ND	149,000	ND	ND	ND
C10 H9 F11 O3	81	74	51,600	74	ND	278,000	219	ND	ND
C15 H22 F12 O5	82	ND	44,400	ND	ND	119,000	ND	ND	125,000
C8 H7 F11 O4	83	1,020	35,600	163	309	412,000	ND	ND	ND
C15 H9 F23 N4 O3	84	ND	21,600	ND	ND	203,000	ND	ND	ND
C8 H F15 O2	85	ND	ND	ND	ND	ND	ND	ND	ND
C8 H5 F12 N O4	86	ND	ND	ND	ND	274,000	ND	ND	ND
C13 H4 F23 N O4	87	ND	1,170	ND	ND	114,000	ND	ND	143

ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	441	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	231	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	1,210	ND	ND	237	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	154	ND	ND
ND	ND	ND	ND	ND	326	ND	ND
ND	ND	ND	ND	ND	690	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	612	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	237	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	17,100	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	466	ND	ND
ND	ND	461	ND	ND	ND	ND	ND
ND	ND	2,260	ND	ND	442	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	203	ND	ND
ND	ND	138	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	342	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	214	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	69,500	ND	164,000	1,470	ND
ND	ND	ND	ND	ND	878	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND

New Hampshire DES MM5 Train Samples--NTA Analysis Matched PFAS

Analyst: John Washington

NHDEP Report # 5

Formula	Mono Mass
Formula	(Da)
C14H20F2N4O	298.16052
C16H24F2N4O	326.19182
C12H14F11I	493.99645
C27H41F3N4O7	590.29273
C8H5F11O2	342.01139
C10H5F15O2	442.00500
C12H5F19O2	541.99862
C8H2F12O2	357.98632
C8H3F13O2	377.99255
C8H5F13O3S	427.97518
C8H5ClF12O3S	443.94563
C15H18F13NO4S2	587.04697
C15H19F13N2O4S	570.08579
C8H6F13O4P	443.97961
C12H9F18O4P	589.99510
C14H9F22O4P	689.98872
C16H9F26O4P	789.98233
C6HF11O3	329.97501
C15H5F17O4	571.99164
C2H2F4O3S	181.96608
C4H2F8O3S	281.95973
C6H2F12O3S	381.95330
C8H2F16O3S	481.94692
C10H2F20O3S	581.94053
C12H2F24O3S	681.93414
C14H2F28O3S	781.92773
C16H2F32O3S	881.92133
HC3F6COOH	195.99590
HC5F10COOH	295.98951
HC7F14COOH	395.98312
HC9F18COOH	495.97674
HC11F22COOH	595.97035
HC13F26COOH	695.96396
HC15F30COOH	795.95758
HC17F34COOH	895.951189

Retention Time RT (min)	Chemours Teflon PTFE 30 Dispersion 1 Response Counts	Solvay Algoflon D 3511 F Dispersion 2 Response Counts	Chemours Teflon PTFE 30LX Dispersion 3 Response Counts	Daikin Polyflon PTFE D-210C Dispersion 4 Response Counts	Chemours Teflon FEPD 121 Dispersion 5 Response Counts	Chemours Teflon PFAD 335D Dispersion 6 Response Counts	GFL Inoflon AD9300 Dispersion 7 Response Counts
8.60		181,000					174,000
10.39	<2x Blank	<2x Blank	<2x Blank	<2x Blank	<2x Blank		<2x Blank
9.41	10,400	7,190	<2x Blank	<2x Blank	<2x Blank	<2x Blank	<2x Blank
5.75	<2x Blank	<2x Blank	<2x Blank	<2x Blank	<2x Blank	<2x Blank	<2x Blank
5.99		<2x Blank	<2x Blank	<2x Blank	<2x Blank	<2x Blank	<2x Blank
6.96							
8.60							
7.58							
5.70							
6.02							
7.26							
7.27		73,700			21,100	485,000	
9.88							
5.45							
8.10							
10.08							
12.95							
4.11						432	
1.38			<2x Blank				
4.09			1,450				
5.74			7,630				
7.23			8,930				
8.74			8,620				
10.69			10,100				
14.17			12,000				
18.18			3,650				
1.86			<2x Blank				
3.97			865				
5.69			4,540				
7.33			8,180				
9.28			15,000				
12.35			24,600				
16.41			13,500				
21.60			703				

Daikin PTFE D-610C Dispersion 8 Response Counts	Daikin Unidyne TG-8151 Surfactant 9 Response Counts	Chemguard S-228M Surfactant 10 Response Counts	Chemours Capstone FS-61 Surfactant 11 Response Counts	Schulman 58-482100 Green Fluro Surfactant 12 Response Counts	Chemours Capstone FS-35 Surfactant 13 Response Counts	Product
				364,000		
<2x Blank		<2x Blank		139,000	<2x Blank	43,400
<2x Blank	<2x Blank	<2x Blank	<2x Blank	101,000	<2x Blank	2,910
<2x Blank	<2x Blank	<2x Blank	<2x Blank	448,000	<2x Blank	7,780
<2x Blank	<2x Blank		<2x Blank	2,790	<2x Blank	985
				6,430		
				6,600		
	733					
				1,840		
		1,470				
		919				
		2,460,000			<2x Blank	2,270
		567				
			203,000			
			1,420			
			141,000			
			14,500,000			
				2,710		
				537		

Color

LEGEND

Peak Area Category

No Detection

<2x Maximum Blank

>2x Maximum Blank to 30,000

30,000 - 100,000

100,000-400,000

400,000 -1,000,000

>1,000,000